

Notes on gender, technology and videogames

Apuntes sobre género, tecnología y videojuegos

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ARTICLE



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Abstract

In this article, the digital gaps generated by gender hierarchies that affect the way in which women develop, disseminate and appropriate technologies are investigated. For this, some relationships between gender and technology were shown to bring the universe of games clo-

ser. Then comes a redemption of the concept of games as a "boys thing", to show how this technology gradually distanced itself from the world of girls. Today, the reverse path is being taken by a new generation of women who create initiatives for the appropriation of games in Brazil and around the world.

KEYWORDS

Video games, Gender, Technology, Feminism, Woman.

Resumo

Neste trabalho, buscamos investigar as brechas digitais geradas pelas hierarquias de gênero que afetam a maneira como as tecnologias são desenvolvidas, difundidas e apropriadas pelas mulheres. Para tanto, mostramos algumas relações entre gênero e tecnologia a fim de fazermos a aproximação com o universo dos games. Segue então um resgate da concepção dos games como “coisa de menino”, de forma a mostrar como essa tecnologia foi aos poucos sendo distanciada do mundo das meninas. Hoje, o caminho inverso vem sendo feito por uma nova geração de mulheres que criam iniciativas para se apropriar dos games no Brasil e no mundo.

PALAVRAS-CHAVE

Videogames, Gênero, Tecnologia, Feminismo, Mulher.

Resumen

En este documento, buscamos investigar las brechas digitales generadas por las jerarquías de género que afectan la forma en que las mujeres desarrollan, difunden y se apropian de las tecnologías. Para hacerlo, mostramos algunas relaciones entre género y tecnología para acercarnos al universo de los juegos. Luego viene una redención del concepto de juegos como “cosa de niños”, para mostrar cómo esta tecnología se fue distanciando gradualmente del mundo de las niñas. Hoy, el camino inverso lo está tomando una nueva generación de mujeres que crean iniciativas para juegos apropiados en Brasil y en todo el mundo.

PALABRAS CLAVE

Videojuegos, Género, Tecnología, Feminismo, Mujer.

1. INTRODUCTION

Science and technology boasted a supposed neutrality for a long time, as if their construction and maintenance were not based on the hierarchy of subjects according to their social class, gender, ethnicity, race, etc. The traditional subject of science is the hegemonic subject, subject of colonialism, white, European, heteronormative and belonging to privileged social classes (Freitas *et al.*, 2017).

This scenario is gradually changing, motivated by feminist agendas and gender studies, black studies, indigenous studies, among others. These studies seek to show that science and technology are part of a structure of power

relations based on an androcentric patriarchal society in addition to not being neutral constructions (Freitas *et al.*, 2017).

Historically, the discussion on the "gender" category has involved diverse perspectives and discussions among researchers, which leads to this field of study having different approaches and lines of thought. More than a category based on physiological elements, gender must be understood as a cultural form of classification, part of a relational and hierarchical system that makes distinctions based on symbolic violence. Beyond the dichotomies man/woman, female/male, is an abstract category that aims to "explain and deconstruct differentiations based on

social perceptions of sex, body, culture" (Natan-
sohn, 2014, p. 5).

This study is guided by the perspective defended by researcher Linda Nicholson. In her article "Interpreting gender", she leads the reader to think of the biological body as something complex that must be analyzed within a history and a culture, from a variable perspective, not constant. The author warns about the dangers of thinking that gender depends on the biological body, which would contribute to the exclusion of those who differ from normative heterosexuality, based on binary male/female opposition (Nicholson, 2000).

To think about the category of women, it is necessary to abandon the female/male dichotomy, understanding it as a complex network of interlocking characteristics (Nicholson, 2000). The author draws on Ludwig Wittgenstein's ideas about language, to argue that the meaning of the word woman should not be defined by means of a characteristic or set of them, but, based on a complex network of characteristics, with different elements present in different cases.

Therefore, I suggest thinking of the meaning of "woman" as being able to illustrate the map of similarities and differences that intersect. In this map the body does not disappear, it becomes a historically specific variable whose meaning and importance are recognized as potentially different in changing historical contexts. (Nicholson, 2000, p. 36)

The philosopher and researcher Judith Butler (2018) corroborates what Nicholson mentions, by abandoning the idea of an exact definition for the "women" category, which she says

would only reinforce the male/female binarism of a heterosexual matrix. The author, in her book "Gender problems", tests the category of the subject by arguing that it is a performative construction. Therefore, the word woman "in itself is a term in process, a becoming, a construction that cannot legitimately be said to have an origin or an end" (p. 69).

Therefore, "woman" is considered as this complex network of intersecting characteristics, a constant construction with no fixed definition. In other words, the meaning of women is not limited to a specific physical, social or psychological characteristic, nor to a set of them, but to the network of attributes that allow mapping similarities and recognizing differences in these issues.

In this analysis, we seek to understand the games from the perspective of "gender technologies", a term coined by the writer Teresa De Lauretis that refers to the discursive techniques and strategies with which specific gender relations are constructed (De Lauretis, 1994). This perspective resembles that of Pereira (2009). As the author mentions, gender is not a property of bodies, that is, something natural for human beings but a set of effects "produced on bodies, behaviors and social relations" (p. 486).

For the author, the genre is the product of different social technologies such as television, cinema, press, internet and also games. Therefore, gender is not the property of bodies, but a set of effects produced in them.

Throughout this work, the focus will be on gender issues, aimed at the experience of women in the virtual context and especially digital games. It is important to reinforce that gender in this research is not synonymous of women. The central issues addressed throughout this research are identified as women, but in this conception there is a multiplicity of identities

created discursively that articulate to reason, geographical origin, social class, cultural context, sexual orientation, among others in addition to gender.

The concept of intersectionality, coined academically by African-American Kimberlé Crenshaw in 1989, allows us to see the overlays of gender, race and class and defines the position of black feminism against the idea of a global white and hegemonic feminism. Although the term became popular in the academic context from the 2000s, its origin is linked to the black feminist movement of the 1970s, known as black feminism. She sought to criticize the hegemony of white, European, heterosexual and middle class feminism. "Intersectionality is seen as one of the ways to combat multiple and interrelated oppression and, therefore, as an instrument of political struggle" (Hirata, 2014, p. 69).

1.1. THE TECHNOLOGICAL GAP OF GENDER

Historically, productive work has been assigned to the male gender, reserving for women the functions of satisfying basic needs and social welfare, essentially linked to the problems of care and reproduction. If in the past they were linked exclusively to functions such as taking care of the house, educating children and engaging in handicraft activities, even today these stereotypes reproduce with the feminine image strongly related to care functions, being mostly linked to areas such as nursing, human resources, communication, education, etc.

Female exclusion from scientific and technological practice was guided by scientific discourses, which postulated based on biological determinations that women would be less able to produce science and technology. More recent studies point to concerns about

this hegemonic, androcentric and sexist universe in science and technology. (Freitas *et al.*, 2017, p. 4)

In general terms, gender studies in science and technology indicate that this knowledge was instituted based on male epistemological and philosophical bases. Science was built by men for men. Not by a biological determinism that justifies the elimination of women from these areas, but by a construction designed to maintain male privileges over the androcentric hegemonic context of science.

The concept of supposed biological determinism was strongly used to perpetuate the idea that women have lower capacities than men in certain areas, including science, technology and games. A wrong concept that completely ignores the social context in which the subject is inserted (Nicholson, 2000). The elimination of women from technology is not based on biological factors, but on a technological gender gap.

This gap refers not only to the obstacles women face in accessing Information and Communication Technologies (ICTs), but also involves social dimensions of how gender operates hierarchically in the design, distribution and appropriation of technologies by the female gender (Natansohn, 2013).

If you look at the history of great technological advances, it is possible to identify two factors. First, the technology has been designed, molded and disseminated by white men in the academy and in the military industrial complex. Second, when women somehow manage to close this gap that segregates gender participation in technology, there is a historical and systematic elimination of female performance, such as the

fact that Ada Lovelace¹ and Hedy Lamarr² are important names in technology and go unnoticed for most people.

What we learn from the history of the internet is that it was engineered, implemented, programmed, and spread by white men in academia and the military-industrial complex. Despite the fact that the earliest computer programmers were actually women, the creators of ARPANET and the earliest desk-sized computers were educated white men with ties to research institutions and the government, spaces which have historically been associated with white male authority and privilege. (Bezio, 2018)

In the book "Internet in feminine code: theories and practices", author Graciela Natansohn (2013) uses the example of the experience of children in dismantling their toys to illustrate what she calls "binary, hierarchical and highly unfavorable technological habitats for girls" (p. 17).

According to the author, children are encouraged to disarm and (try) to reassemble their toys in an exercise of fundamental creative curiosity in making technology, while girls in the same situation of disarming their dolls are scolded and discouraged, encouraged to show zeal and responsibility for their belongings and pushed to the work of care, social welfare and reproduction.

Cassell and Jenkins present data in the 1998 book "From Barbie to Mortal Kombat: gender in computer games", which corroborate Natansohn's vision. The authors investigate the American context of player culture in the 1990s and discuss gender relations in computer games based on cultural references, values and attributions to games according to the gender of children.

For them, the imaginary that the female gender has no interest in digital games is not due to the supposed biological determinism, but to the fact that men dominate access to the computer, excluding women from the scene.

The authors cite a study conducted with preschoolers in which boys appropriated computers, limiting girls' access. The lower exposure of girls to computers and games was reflected in their lack of interest in them. However, after the mediation of the teachers, guaranteeing equal access for children, both had a similar interest in games (Cassell and Jenkins, 1998).

Several factors directly affect this "technological gender fracture" such as: literacy (after all it is necessary to read and write to use technological resources), computer education, basic knowledge of the English language (as it predominates in software, websites and devices technology), economic resources to buy and pay for access, production and dissemination of useful content for women and opportunities for female insertion in science and technology development contexts (Alonso, 2007 quoted by Natansohn, 2013).

Natansohn (2013) lists three types of digital gender gaps: The ability to access networks, people's use of technology and the place of women in production and technological governance.

1 Ada Lovelace (1815-1852), math and English writer, created the first algorithm to be processed by a machine. She is considered the first woman programmer in all history.

2 Hedy Lamarr (1914-2000), actress and inventor, created a communications system for the US Armed Forces which served as the basis for the invention of Wi-Fi and the cell phone.

By bringing this perspective to the games, the technology gap is quite symptomatic, so it is possible to observe the three types of digital divide:

a) The ability to access networks: The data shows that the female gender appropriates mobile games more easily, that is, games for mobile devices such as smartphones and tablets; while men dominate the spectrum of consoles and computers (Sioux Group *et al*, 2019). The figures also indicate that the use of the Internet through mobile devices in Brazil is the same between genders, with 74% of men³ and 75% of women claiming to have used the Internet on their cell phones in the last three months. In relation to the computer, 63% of men have used a computer, while only 58% of women have used it. One of the explanations for this phenomenon is that the popularization of smartphones and prepaid Internet plans allow greater female access to these devices. Most mobile games can be played offline, they do not necessarily depend on mobile Internet or Wi-Fi to function, which requires fewer financial resources and allows women to access these games.

b) The use that people give to technology: Mobile games are considered "casual" games, they are hardly taken to professional level competitions, they have little or no publicity and do not grant their players the status of "gamers". These games are marginalized in the dominant culture of video games, considered less relevant or even as "women" games.

c) The place of women in production and technological governance: According to

data from the 2018 Census in Brazil, women represent only 20.7% of the workforce among partners and employees of game production companies (Sakuda and Fortim, 2018). If the analysis by area of activity within the industry is observed, this gap is even greater. The female gender is concentrated in marketing, sales and administration activities, representing only 10.8% in areas directly related to technological creation, such as programming and project management.

The examples above illustrate how the gender digital divide marginalizes the participation of women in the experience of digital games. More than entertainment platforms, games can be considered the first and probably the most attractive way to introduce children to the technological universe.

The experience with digital games opens a door to the interest and appropriation of the technology field since childhood, with direct implications in the way in which power relations based on the gender hierarchy are perpetuated in the field of science and the technology. The way in which this digital divide has been consolidated since the beginning of the gaming industry is what will be discussed next.

1.2. AFTER ALL, ARE VIDEO GAMES A BOY'S THING?

The perception that games are a "boy's thing" is deeply rooted in society, based on the belief in a supposed biological determinism by which the male gender would have more interest and aptitude for digital games. However, if the brief history of video games is observed, it is clear that this masculine hegemony is due to the fact that the scientific structure, technological structure and the base of the gaming industry

³ The 2018 ICT Household Survey does not include gender, only sex.

is based on patriarchal and androcentric power relations.

The first video games emerged in 1952, from the computerized version of *TicTac Toe* or *Tic Tac Toe*, programmed by Alexander Douglas at the University of Cambridge. In 1958, William Higinbotham produced an oscilloscope version of PingPong at the Brookhaven National Laboratory of the US Department of Energy. And finally in 1962, Spacewar was born, the first computer game that was not a digitized version of another game and was developed by a team of MIT researchers led by Steve Russell (Bezio, 2018).

What the creation of these games has in common is that, like the Internet, their developers (and consequently the players) were highly educated white men who worked in the academy or in the military and industrial complex of England or the United States. As a result, the games created in the 1970s and 1980s, which ended up perpetuating to this day, are in large numbers narratives centered on male figures of soldiers, adventurers, cyborgs and criminals.

Despite this scenario, the 1970s marked the beginning of a period of female ascent to the media and the labor market. Not by chance, the first video game consoles began to be sold as entertainment for the whole family during this period, regardless of age and sex among the public, similar to the strategy used to market devices such as television or radio, for example.

Figure 1 illustrates the strategy used by the Atari company to announce the Atari 2600 console, launched in the United States in 1977 and available in Brazil in 1983. It is noted that the console calls itself "The No.1 enemy of the Brazilian family", referring to a family activity in which the father, mother and children fight together and without distinction with the various villains present in the games.

During the 1980s, the video game industry faced a sharp drop in sales due to the financial crisis in the United States and the strong competition from Japanese companies whose products were beginning to reach the US market. At that time, the Japanese company "Nintendo" chose to reposition video games as male toys. This was a more stable demand sector compared to the appliance market, which in times of crisis was seen by consumers as a superfluous good.

Figure 2 presents a sequence of images taken from the first television commercial⁴ made for the Nintendo NES console, launched in 1983 in Japan and available in the United States in 1985. In the video, a boy and a young white man play enthusiastically accompanied by the robot Rob, an element that accompanies the game.

This strategy proved effective for a while and was followed by other companies in the industry. Since then, video games have begun to target young and male audiences (Blanco, 2017). The 1998 data show that the audience of players was 80% male in this period (Bezio, 2018). Another element that can have a great influence on the low female adherence to games is related to recreational machines, game machines available in public spaces or in specialized sales houses.

Arcades were very popular in the United States during the 1980s. They were known as game rooms, operated with coins or tokens and were responsible for popularizing video games among the public that still had no access to domestic consoles. However, these places had a dubious reputation, as they were constantly compared to slot machines controlled largely

4 The full video of the ad can be seen in: <https://www.youtube.com/watch?v=IU1-ncmPijk>. Accessed on: Mar 23, 2019.



Figure 1. Ad of the Atari 2600 console. Source: REIS JR., 2019.

by the mafia, which removed the female audience (Donovan, 2010, cited by Blanco, 2017).

The social structure based on misogynistic precepts prevented girls from attending these places, pushing them into occupations such as playing with dolls or doing domestic activities while boys had fun and got used to the challenges of games, which according to several studies, have the potential to contribute to the development of logical reasoning (McGonigal, 2017). “Gaming might help develop confidence and skills in using digital technologies, leading to an increased interest and aptitude for careers in computer science and other fields that heavily rely on such technologies” (Hayes, 2007, p. 23).

Tōru Iwatani, creator of Pac-Man, seems to have noticed this distance of women from recreational rooms and claims to have developed this game with the aim of attracting the female



Figure 2. Television commercial for the launch of the Nintendo NES in 1985 in the USA. Source: adapted from Retro Games Fan, [undated].

audience to these spaces. To create the character, Iwatani would have associated the image of women with food and, inspired by a pizza, ended up creating one of the most emblematic characters of video games (Blanco, 2017).

Despite the great success of Pac-Man, it was only in the early 1990s that the industry identified the opportunity to invest in the female audience, motivated by factors such as market saturation, the introduction of the CD-ROM and discussions on the gender gap in the area of technology (Cassell and Jenkins, 2011). These factors culminated with the launch of the *Barbie Fashion Designer* game, produced by Mattel in 1996. This explored the Barbie doll brand, quite established among the female audience, and had the advantage of being a computer game that was marketed without the user having the need to buy a specific console. This point is very relevant, given the direction of "male products" that the video game industry had given to the consoles during the previous decade.

The Barbie game begins a movement called *Pink Games*, following the stereotype that girls are only interested in clothes, makeup, beauty and activities considered "homelike" (Cassell and Jenkins, 2011).

The so-called *Pink Games* ended up reinforcing the figure of women in objectified and sexist positions. In opposition to this perspective, The *Girls Games Movement* sought to provide joint practices between technology developers, researchers in the field of gender studies and activists of feminist movements in the production of games that gave less emphasis to the aspects of "femininity" of the *Pink Games* and sought to build narratives that valued the experience of women in digital games.

In 1995, Theresa Duncan and Mônica Gesue launched the game *ChopSuey*, an interactive story of two adventurous girls, fans of Chinese food. This game opens an alternative trend to the *Pink Games* with games also aimed at the female audience. It focused on issues of socialization, conflict resolution and reproduction of situations experienced by girls aged 8 to 12 years. These games, which would be known as *Purple Games*, were developed primarily by producer *PurpleMoon* (Blanco, 2017).



Figure 3. Cover of the Barbie Fashion Designer game CD, Mattel, 1996. Source: Barbie, [Undated].



Figure 4. Cover of Rockett's New School by PurpleMoon (1997). Source: Rockett's New School, [Undated].

Despite escaping the femininity stereotype based on clothing, makeup and housework, the *Purple Games* were based on the idea that women would naturally be more sociable and conciliatory than men. Thus, both cases are based on a supposed femininity established on the binary opposition male/female.

The thinking behind the Purple Games is based on a feminist perspective called "differentia-list" or even "essentialist", marked by struggles for the affirmation of differences and identity that considered genital sex as a differentiator in relation to men, and therefore, builders of a female identity. This perspective was intensely criticized by authors such as Butler (2018), Nicholson (2000) and Scott (1989), who, among their specificities, approach gender as a social and cultural construction, the effect of discursive representations.

The case study recorded in the article *Gender identities at play: case studies of two women playing Morrowind* by Hayes (2007), corroborates the aforementioned authors in criticizing what she defines as limited conceptions of the nature of gender and its manifestation in the behaviors and self-perception of people in relation to the way in which the market and part of the academy identifies the supposed female preferences in relation to games. For the author, the stereotype that female players prefer casual and collaborative games with a focus on social interactions, while male players opt for competitive and combat games does not reflect the multiple layers by which individuals build their identity, such as class, race, personal history and cultural factors that differ in each other's life.

An example were the *Grrrl Gamers*, women who in the 1990s escaped the stereotyped standard of *Pink Games* and opted for games considered "masculine", which caused their presence and

ability to be recognized in that space. These women did not look for their own segment within the games, but instead claimed their representativeness in all types of games, turning virtual arenas into true territories of resistance.

The Girls Games Movement began to lose strength in the late 1990s, but its seed was planted in the fertile ground of games that were going through a rising stage, driven by the advancement of technology in the development of consoles and personal computers (PC) along with the popularization of broadband Internet.

In this context, the female community continued to occupy spaces that represented 46% of the global gaming audience in 2018 (Newzoo, 2019). In Brazil, women represent a majority among those who play digital games in the last three years and in 2018 they represent a majority among the general public of games (Sioux Group *et al.*, 2019).

Due to this scenario of rapid female insertion into the universe of gamers, the movements that seek to give greater visibility to women in the scene and protect them from constant attacks against their presence in the games, have been growing and solidifying, which helps in the search for greater gender equity in this environment.

2. CONCLUSIONS

Unlike a certain "naturalization" that can be considered when it comes to gender differences to access games, we try to demonstrate in this work that the imbalance in today's gaming market is a reflection of both the historical context of the induced distance of women's access to technology and the decision of the gaming industry to direct their efforts towards a male audience, from a certain moment.

When looking at the literature, the academy's interest in investigating how female representativeness in games grew in the last decade is evident, as well as the experience of women in the context of electronic games due to the advancement of female participation in the community of gamers and the demand for equal opportunities in the competitive professional scenario of the games.

The struggle of female players for space and recognition is resisted by the community that interprets the emergence of women as an invasion of a space previously reserved for the expression of masculinity anchored in violence and virility. However, this resistance has been fought through women's groups and projects that seek to ensure female appropriation of the game scene.

What we tried to show here was the origin of these fields of tension built from the relations between gender and technology, in which gender operates as a hierarchical element that has negatively influenced women's access to this field of knowledge.

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