

Co-construction of society/technology in digital virtual environments: corporealities and non-appropriated/ble experiences within technosocial logics

DOI: <https://doi.org/10.1590/1809-58442022112en>

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Abstract

The article delves on the question about the movement and other ways of appropriating techno-social frameworks of the present. Thus, it develops a theoretical and reflexive systematization and update on approaches of differential experiences in virtual environments. The main themes for this purpose are spatialities, corporeality, agencies and appropriations of spaces and tools. This approach is based on theories such as technofeminism and social studies of technologies, especially the perspectives of social constructionism. We use the theoretical tools of feminist and intersectional studies to explore on the notion of differential experiences. The conclusions offer situated proposals for conceptual frameworks, as possible ways of approaching on issues about digital technologies, diversity, access and equity.

Keywords: Virtuality. Differential experiences. Spaces. Corporealities. Equal digital movement.

Introduction

Technologies and virtuality are artefacts historically rooted in dominant socialization processes such as market and capitalism dynamics, privatizing and excluding logics, androcentric systems, and other versions of dominant socialities of this time. In this context, it seems relevant to approach virtuality in the ways that people's relations with technologies and virtuality acquire. Particularly, to explore ways of moving and experiencing virtuality and technologies. These issues are placed in an era when mass technologization and the exercise of virtuality are vertiginously integrated into the everyday living, but decidedly reserved in their planning, intervention and development to a few. Against this backdrop, we present theoretical tools to account for people's conditions and configurations of social relations with technologies and virtuality.

This proposal arises in relation to Latin-American debates around the terms in which we can understand access for different groups of people, around attempts to guarantee inclusion in practicing and consuming throughout technologies – even acknowledging how problematic some of those desires and ideals are –, around the analyses of technological uses, and around the new forms of activism and citizenship through digital technologies, among other examples of how relevant and how much we put at stake when living through digital technologies.

In this paper, we study virtuality as a place for sustaining part of everyday lives, in order to consider the different experiences in social relations with technologies and understand this construction from a sociotechnical perspective. Thus, we research the conditions to discuss access, sustainability, belonging and movement in digital technologies and virtuality, from a conjunctural and contextual perspective. Epistemologically, this analysis conceives virtual environments, not as mere channels of communication or software but as a synergy between the ways they are constituted as inherent dimensions of the spatiality by their users and the ways in which they are in fact a – physical and virtual – social space where activities and relationships are established. Throughout this study about virtuality, we issue questions about the implicit power relations occurring given its prefiguration, the development of virtuality along with other social frames and the actual experiences that turn out happening virtually.

Virtuality is usually understood as something relatively recent, historically speaking. Superficial readings associate something virtual with something immaterial, as something always to come or as something new. These readings deprive it both of empiricism and history. From our perspective, virtuality cannot be understood merely as a de-realizing movement but it is considered as a vector creating realities (LÉVY, 1999). In short, we could establish that human history is a history of virtualizations (LÉVY, 1999; 2011). Virtuality can easily be considered as a constitutive dimension of culture and inherent to the human being, not only nowadays but also since the very invention of symbolic systems and languages. With this kind of ontological displacement of objects to virtuality – which allows defining them not by their essence but as an event – we could acknowledge vectors of virtualization that are, in fact,

cultural pillars, such as language as the virtualization of memory, or law, as the virtualization of violence (LÉVY, 1999; 2011).

Therefore, virtuality is neither new nor novel. But during the last decades it has acquired an unprecedented visibility as a transcendent dimension of reality. Mostly because of the influence of virtualized and virtualizing groups that strongly structure relevant parts of social life: technoscience, finance, media and social media, and online services, products and social relations platforms (LÉVY, 2011).

In the remaining sections of this article, we will develop the relevance of conceiving experience as a continuum along different spaces. Its meanings and characteristics will be analytically disaggregated. Subsequently, we deepen into the understanding of technologies as an intrinsic and co-constructed part of society and, with it, the artefactual ways in which society and technology link. We also frame the ontological conception necessary to comprehend different versions of experiences that are being modelled in this interwoven game. We try to ponder the unexpected heterogeneous agents constructing technologies and the multiple ways in which they practice their link with both technologies and virtualities. We do it based on techno feminism theories and Science, Technology and Society studies combined with a gender and intersectional perspective. In the sections Virtual corporealities and Virtual spatialities, we look into the different factors necessary to address the value of these other kind of experiences. After our main outcomes, we project frames to address issues around technologies, access and equality.

For the production of this article we conducted a descriptive literature review, in which we selected a coherent set of readings related to the main problem explored in this article – the ways of understanding differential experiences in virtual environments, considering spatialities, corporealities, and agencies from feminist and intersectional studies. For this purpose, we followed the criterion of maintaining a balance between main references in the field and authors who complement these approaches, following the objective of building a corpus of contrast and conceptual dialogue (GUIRAO GORIS, 2015).

In-continuum spaces

In our daily routines, we find ourselves in multiple places where we move as a continuum across physical, social, media and virtual spaces (GARCÍA VARGAS, GAONA Y LÓPEZ, 2016). People apply differentiated values for each of them (for instance, historically we have learned to distinguish between public and private spaces) and we exercise them according to the understandings that we have incorporated socially for each one.

As experience is also developed in virtual settings, these kinds of environments become a spatial axis for life. Spaces are a product of interrelations, that is, they are constituted by them. The relations that constitute them are inseparable from the practices that effectively end up happening in them. Therefore, they are always in construction (MASSEY, 2005). Thus, the

space is object and process simultaneously. The objective and material structure are the space with which we find ourselves (a space we can consider, in this way, an object). And space as process takes the form of what we call *habitus*: the way we embody the exterior, but also the way we classify and recognize it.

Beyond this fully empirical instance of spatial experience, we use the notion of the Triad of Spatiality: conceived space, perceived space and lived space. In other words, representations of space, a rationalist facet, foreseen, designed and conceptualized in a way that is tied to the relations of production. There is a pragmatic dimension of space, fully lived and experienced that ensures its reproduction, it is the middle and outcome of human activity. Finally, there is a space of representation that encompasses the other two spaces, a way of appropriating it. This conceptual tripod gives density to the spatial conception as a process and enables the possibility of transformation at the iteration (LEFEBVRE, 2013; SOJA, 1996).

A final layer to build this definition of space we are working with addresses differences between actual and virtual spatialities (DELEUZE, 2002). This refers to the oppositional characteristics of different spaces. We bring this dimension to consider the attributes of the virtual space as opposite to the actual space, not as an opposite meaning of the real space. Virtuality, therefore, is an ongoing, contingent state as a space, but not something dissociated from historical materialities that are composing it. We consider virtuality as real present movements based on historical accumulations of the past. A characteristic that is rarely considered when talking about virtuality, most of the time surrounded by ideas linked to the ephemeral, the vanishing and the immaterial.

Technologies and society as a co-constructed network

Some Science, Technologies and Society Studies establish that societies are technologically constructed, and technologies are socially configured (THOMAS, 2012). These kinds of analysis point to the social constructivism of technology (BIJKER, 1995) and aim to overcome the limitations and blind spots left by determinist theories around technologies.

This approach considers technologies as part of the social fabric, one among many others, that in contemporary times play a significant role ensuring different forms of social dynamics. This perspective of technologies as social and society as technological implies a relation of co-construction between them, and the need to account for a wide variety of elements or dimensions and their articulations, characteristics, problems and located situations (HARAWAY, 1995).

Information and Communications Technologies (ICTs) are contingent and open agents that express the social relations in which they are integrated. If technologies are an integral element of the social architecture, we need to look into the power relations that interact with the design, innovation and worth of technologies (in its gendered and intersectional articulations). Moreover, the differential influence that technological change has on agents whose roles

and expectations are based on different socializations, different conventions and norms, and different territorialities of life.

A sociotechnical approach

The outlines in this article about the co-constructive composition of technologies and society are based on a sociotechnical perspective. This approach implies collecting material, discursive, economic, historical, symbolic and sensitive relations, among others, to frame and organize them according to distinguishable criteria in intertwined, simultaneous stages of analysis. From this perspective, environments are features that enable flexible interpretations of each based on contextualized, located understandings.

Beyond the apparent contingent character of these assemblages, sociotechnical analysis adds these social scales to a previous historical system that already detaches structured relations between people. If technologies always imply renewed sources of power, analyses and political action ought to be equally renewed in this field. The interrelations and social relations with technologies are inevitably intermeshed with power relations, naturalized social positions and ongoing oppressions (HARAWAY, 1995). The network between technologies and society requires the study of the relations between relevant social groups that are historically and geographically located, and politically oriented (HARAWAY, 1995); and the study of socioeconomic and sociotechnical assemblages (CALLON, 1992; LATOUR, 2013; LAW, 2004). From this combined analysis, we figure out the ideological dimensions of mediated experience, the qualitative differences between activities and fields of life, and the valuations made by agents involved in the networks as central elements for the analysis of the sociotechnical networks.

In this kind of approach, there are two main axes to distribute in a general criterion the elements of every sociotechnical assembly: the social relations with technology (HARAWAY, 1995) and the social relations through technology (SIBILIA, 2006). These axes are not paralleling of the online/offline dichotomy that early ethnographic studies of virtual environments conveyed as their two constitutive dimensions (HINE, 2000). Indeed, each one of these two instances is defined by combined aspects linked to the complex web of entities, elements and interactions that define online and offline spatialities as complementary experiences (TUDOR, 2021). Of these elements, we are focusing mainly on the experience constituted by the agents of such interactions (relevant social groups), and not as much on their relative movement between spaces.

As the technological and social change occur in an intertwined fashion for people, both in a material and in a signifying level, the analytical nodes of the material and the relational level are the best way to include, represent and explain how sociotechnical assemblages are understood. Creating a Material Node involves the technological, normative, institutional, market, geographical, social, economic and contextual frameworks. Developing a Relational Node implies referring to different characteristics of the involved agents, demographic

data, ways of inhabiting and moving across different spaces, specifically the virtual space, the social relations with technologies mediating these movements, the valuations and expectations implied in the process, the social relations established with others in the mediated environment, the legitimacy attributed to these relations and activities, among other aspects that build virtual experience.

Ontologies of technology facing multi-agent experiences

The powerful metaphor of the cyborg, brought to popularity by Haraway (1987), gave rise to an infinity of theories, mainly from feminism, that put in crisis the borders established between elements, structures of senses and the rational bases that sustained the logical dichotomies between different environments. This cyborg hybrid implies a contemporary way of being that fragments the universal and assumes the limits of present life as a permanent performance or a state of permanent interconnection.

Beyond its powerful and mainstreamed intervention, some authors argued the need to denaturalize the cyborg metaphor. They suggested the need to detach it from the promises of breaking hierarchies and liberating oppressions that future theories seemed to imply. They would argue its categorical effectiveness left somewhat neglected debates to come up with proposals that would more fully address the concrete living conditions of non-ideal subjects in the context of a technological and virtualized social order (MARTÍNEZ-COLLADO, 2008; SUED, 2018)¹.

The tensions between these two ways of seeing have to do with the ontological definition they decide to establish. A political ontology of technologies (LAW, 2004) from a cyborg ontology (HARAWAY, 1999) contains the premise that we would not all be living in the same reality, but in a world of multiplicities and differences. There would be consequent experiential and artefactual variations according to the version of the world that each one experiences. This ontological version allows not subsuming all the experiences to a single admissible version. Although it seems like this differs from what we are trying to understand of virtuality as an inhabited experience, this ontology comes along as an evident way of understanding reality when, for example, we admit that modernity could not be the only possible version of history, or that a regulated space (for instance, a State) could not be appropriated in a differential fashion (by, for example, different communities).

This ontology of technology does not dismantle or disable the understanding of previously existing inequalities, but rather re-articulates and values them as part of the movements that constitute the social relations with technologies, and the relationship of these relations with all other dimensions of life as something co-produced and co-affected.

1 What Haraway (2013) – quoting Trinh Minh-Ha – calls inappropriated/ble others.

The concatenation of differences that this epistemological understanding reveals does not irreducibly partialize the experiences, but rather seeks to make such experiential variations real and meaningful. Some of these differences are reminders of historical world systems of domination, some are unexpected reformulations of those structures, and there is a basis for admitting both possibilities. Only this way can we acknowledge the validity of different experiences within an artifact or artifactual system in order to understand networks of meaning produced by agents and the relationships and positions that constitute its appropriations as functioning or non-functioning, as useful or not useful, in addition to recognizing for whom, for what reasons, and how does it happen.

In what is left of this article, we will include debates regarding Virtual Corporealities as a way of experience and Virtual Spatialities as an environment of movement and inhabitation, so we can finally conclude on notions linked to inclusion such as access, movement and sustainability in virtual environments.

Virtual Corporealities

We have considered the position in which experiences with technologies that do not respond to the ideals and expectations of the planification and regulations of virtual environments are located. These concerns deal with the fact that – in specific contexts and through ways of developing the particular conditions in which certain subjects live – often appropriation, representation and the narratives of virtual everyday life find dissimilar ways of including themselves and travelling through the artefacts. Practices that cannot be ignored, generalized or interpreted with lenses that assimilate them to contradictory or negative uses of technologies.

To account for these concerns, we establish that the experiences of relations with and through technologies are always embodied experiences. Embodied practices are always both generating and disputing meanings, and language is only one of those meanings. Thus, language, concrete and inhabited body, and situated social practices all formulate an experience. Analytically, this experience includes textualities crossed in virtuality, individual and collective identifications of themselves in different inhabited environments, valuations of each of those environments, strategies and redirections instrumented at the practice, as well as the ways in which they are able and decide to inhabit the lived experiences.

We give preeminence to the concrete and material character of corporeality in the virtual experience because there have been many theories that argued about the obsolescence of the body after the expansion of technologies of virtuality, and others that have dissociated from the critical responsibility around social relations with technologies based on technophobia. Based on the critical baggage of feminist studies of technologies, we assume that the relations in and with technologies do not generate concave or incomplete agents. The cyborg body (HARAWAY, 1995), the techno body (PRECIADO, 2008), or the queer body (CAMARGO; FERNÁNDEZ

VAZ, 2012) are ways of conceiving as legitimate and whole the varied and multiple ways of framing social life mediated technologically.

From an intersectional and gendered perspective, it is necessary to reconstruct the series of cultural conditions that embody, enable and limit possibilities restricted to the expectations of socialization of each subject. In addition, it implies accounting for the fact that differentiated experience shifts into an unequal experience for some. The attention given to the dimension of the embodied or inhabited experience responds to the epistemological premise of experience as a fountain of valid knowledge. As long as experience is constituted based on specific situations and materialities, historical positions and on standing power relations, subjects appropriate available categories and narratives to name the world, and while at it, they rename it and question it.

Sandoval (2002) developed a set of theories to recognize and understand these ways of displaying and ways of experiencing techno-human conditions. She defines them as an Oppositional Consciousness to standing regimes. The feminist author distinguishes these differential forms of experiencing society and technology structures in: the methodologies of reading signs (within alternative semiological fashions); the deconstructive methodologies (when the signs are separated from their dominant meanings); the meta-ideological methodologies (of appropriation of concepts for their oppositional or revolutionary re-semanticization); the democratic methodologies (of transmission of the previous methodologies not only for one's own survival but for the collectivization of new meanings); and, finally, the methodology of differential consciousness (that learns to harmoniously maneuver the different methodologies according to different contexts). The critical use of the notions of experience and the oppositional consciousness is a way to legitimize and give other margins of existence to diverse and differential virtual movements, and to recognize them as a valid object of knowledge.

Virtual Spatialities

Just as there are no absolute and stable spaces, experiences that take place in the Society and Technologies network are also variable and partial. In a related matter, in their practice, people keep their daily routines of movement in a continuum across different spaces to which they assign different valuations, interests and strategic possibilities to perceive, judge and practice them. Beyond this experience of continuum, in paying focused attention to virtuality, we cannot fail to acknowledge the way in which physical and virtual corporealities – and the personal energies invested in each – are co-constitutionally linked. We also focus on actual and virtual spatialities in order to comprehend all the relative values attributed to the different presences according to the symbolic entity assigned to each element.

Having fixed the materialities imprinted on the spatialities with respect to the purposes for which they were initially produced (what Lefebvre (2013) already established in his writings about the sets of social spaces these spaces will end up having), it is necessary a clear distinction

between the spaces set for institutional purposes and the ones with commercial means². This asks for a way to search and gather elements for the material nodes. Analytically exploring these environments allows distinguishing the degree of inflexibility that the production modes fix as spatial characteristics related to their interests. These interests become intrinsic to the shaped virtual spatiality. For instance, we cannot avoid when moving through certain commercial environments feeling that they are more “friendly” to us in their disposition (such is the case of commercial social media that seems more intuitive of our movements and desires). We can neither avoid bumping against restrictive or privative barriers that respond to commercial and marketing objectives – ironically, in a non-contradictory way with the previous disposition. Institutional environments often seem affable but more basic and plainer in contrast with the rewarding eye-candy of commercial virtual spatialities.

Beyond the variations in these spatialities, contemporary ways of subjection find the virtual spaces and the new spaces of relations with technologies as their preferred areas of deployment. In the past, we were productive subjects in specific places destined to the wage-earning work and the material production. Nowadays, as subjects, we continue being required exploitable competitions but in a less tangible fashion, given that it has to do with data exploitation and extractivism of subjectivities. People coexist and unfold their experience mainly subject to these axioms of consumption and exploitation, while our disposition seems more likely to practice and inhabit within the spaces produced by capital and the dominant groups. Nowadays, the asymmetries in virtual experiences are also involved with the monetized levels of extractions of this type, becoming a resource, and operating to generate and increase new instances of accumulation for the already dominant sectors.

Data mining, political strategies of content deviation, fake news, geolocalized tracking or spams are nothing but the rationality of the spaces where we are more fully involved, mostly because of the fluid powers of accumulation they keep producing. In this predominant production of virtual spaces and technologies, people end up practicing marginal possible agencies or deviant practices such as the ones described by Sandoval (2002).

Conclusions: How can we address questions of equality around digital technologies? Pathways to talk about access, movement and sustainability

The characteristics of co-production between society and technology presented up to this point imply the immanence that social relations with technologies have in people’s lives. This renders void questions about unnoticed technological emerging or social “impacts” caused by technologies, assimilating the correlational immanence between both dimensions and

² We mainly focus on institutional and commercial spaces, despite knowing of the existence of space productions involved with the search to create other kind of communities. These space creations are models of possible worlds that, to a good extent, are consistent with the hybrids pointed out by different authors of the Science, Technologies and Society Studies (HARAWAY, 1999; LATOUR, 2013; SANDOVAL, 2002; WAJCMAN, 2005). Those spaces are, essentially, the leaks between the captures described in this essay.

pairing the technological logics to the relational regimes. Not only by the actual practices with technologies but also by its representations and imaginaries in people's daily life. There is no experience outside the relational regime established between Society and Technologies. There is not a binarian inside and outside of technologies, a belonging or an absolute defection of technologies. There is a regime produced by the disposition of the courses of action generating the Society and Technologies networks between those who plan and produce them artifactually, and those who experience and live them left out to agency. Thus, we need to issue more equal and just possibilities within such experiences.

For instance, inclusion would imply the integration to already disposed devices. Nevertheless – as we have already pointed out in this work –, the differential ways of experiencing them cannot be assimilated to homogeneous readings of practice. They rather require an analytical composition of the complex materials and relations in which they position themselves.

Although the notion of access has roots in a consented experience with the approached device, it implies the recognition of the one accessing as an element of the environment, as an agent that deserves to be comprehended. The differentiated accesses based on all criteria that can widen material gaps in the relations with technologies and the relations with virtuality are the ones that deserve to be fully addressed. Addressing the relational and the material factors involved in access, we can ask about the socio-cultural and economic living conditions; functional, gender and generational aspects; and how political decision affects people as preminent factors that shape the presences and interrelations within technologies. The questions about the political economy of differential experiences and the questions from a sociotechnical perspective are the kind of questions that can fully give density to the matters of access.

After what we have established about contemporary social spaces, virtual spaces and spaces of technologies, we cannot but scrutinize the rationality that leads to make each of these spaces a complex of subjection to absorb experiences. When so much data about people and, thus, the structural possibilities of driving and limiting agencies are in dispute, there is no other action but to advocate for the social construction of territories of virtuality that attempt to unravel the effect of more violent spaces where we are nowadays subjected.

The intrinsic dynamism of movement that characterize technologies and virtualities allows us to add as part of these conclusive statements another factor of high incidence towards an artefactual construction more linked to convivial and more equal interests rather than to privative, androcentric and market aims. We refer to the sustainable elaboration of the Society and Technology network. Sustainability implies a development that extrapolates the initial rationalities of the sociotechnological environments in order to deploy them side by side with people's demands and practices, that takes into account the technical contextual limitations, evaluates the cultural and material scopes of the tools and processes, and that has the collective social validation (SAN MARTÍN; ANDRÉS; RODRÍGUEZ, 2017).

Focusing on sustainability factors imply a deeper and more conscious connection between the co-construction of Technologies and Society, and its relation with interrelationships, with people's variable skills, with public policies as devices of production and control, with cultural logics, with functional accessibilities for all, and with semantics that can be intelligible and interpreted by all.

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Authors' contribution

Verónica Sofía Ficoseco and Melina Gaona actively participated in all stages of the manuscript's preparation.

Conflict of interest

The authors declares no conflict of interest.

Editorial data

Received on: 06/01/2020

Approved on: 05/28/2022

Editor: Maria Ataide Malcher

Editorial assistant: Weverton Raiol

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