



**RETHINKING SCIENCE AND INNOVATION: AN ANALYSIS THROUGH THE  
DECOLONIAL PERSPECTIVE IN DIALOGUE WITH THE ACTOR-NETWORK  
THEORY**

***REPENSANDO A CIÊNCIA E A INOVAÇÃO: UMA ANÁLISE PELA PERSPECTIVA  
DECOLONIAL EM DIÁLOGO COM A TEORIA ATOR-REDE***

***REPENSANDO LA CIENCIA Y LA INNOVACIÓN: UN ANÁLISIS POR LA  
PERSPECTIVA DECOLONIAL EN DIÁLOGO CON LA TEORÍA ACTOR-RED***



Murilo Henrique GARBIN<sup>1</sup>  
e-mail: murilo.garbin@unidep.edu.br

**How to reference this article:**

GARBIN, M. H. Rethinking science and innovation: An analysis through the decolonial perspective in dialogue with the actor-network theory. **Estudos de Sociologia**, Araraquara, v. 28, n. 00, e023024, 2023. e-ISSN: 1982-4718. DOI: <https://doi.org/10.52780/res.v28i00.16909>



| **Submitted:** 06/07/2022  
| **Required revisions:** 29/09/2023  
| **Approved:** 15/10/2023  
| **Published:** 30/12/2023

---

**Editor:** Profa. Dra. Maria Chaves Jardim  
**Deputy Executive Editor:** Prof. Dr. José Anderson Santos Cruz

---

<sup>1</sup> University Center of Pato Branco (UNIDEP), Pato Branco – PR – Brazil. Master's Degree in Regional Development from the Federal Technological University of Paraná (UTFPR). Bachelor of Laws from the Federal University of Paraná. Professor of Intellectual Property, Digital Law and Business Law on the Bachelor of Laws course.

**ABSTRACT:** The article proposes, using literature review, to rethink science and innovation through the decolonial perspective, dialoguing with the Actor-Network Theory. Reframing the beginning of modernity in the Conquest of America, it highlights the constitution of the first modern identity, coming from the classification between conquerors and conquered in the idea of race. In this scenario, the making of science becomes deterministically understood, supposedly objective and neutral, as the only valid knowledge. Thus, the objective is to reflect on the discursiveness of modern sciences, giving voice to different forms of knowledge. An attempt to denounce the Coloniality of Knowledge, suggesting the notions and projects of Transmodernity and Epistemologies of the South. It is concluded that these other forms of knowledge can be presented as alternatives to the hegemonic order of capital, which reproduces the myth of infinite progress and control of the planet, submitting knowledge and innovations to the market.

**KEYWORDS:** Decoloniality. Science. Technology. Innovation. Actor-network theory

**RESUMO:** O artigo propõe, por meio de revisão de literatura, repensar a ciência e a inovação através da perspectiva decolonial, dialogando com a Teoria Ator-Rede. Ressituando o início da modernidade na Conquista da América, evidencia-se a constituição da primeira identidade moderna, oriunda da classificação entre conquistadores e conquistados na ideia de raça. Nesse cenário, o fazer ciência passa a ser compreendido deterministicamente, pretensamente objetivo e neutro, como único conhecimento válido. Dessa forma, se objetiva refletir sobre a discursividade das ciências modernas, dando voz a formas distintas de conhecimento. Uma tentativa de denúncia da Colonialidade do Saber, sendo sugeridas as noções e os projetos da Transmodernidade e das Epistemologias do Sul. Conclui-se que essas outras formas de conhecer podem se apresentar como alternativas à ordem hegemônica do capital, a qual reproduz o mito do progresso infinito e do controle do planeta, submetendo o conhecimento e as inovações ao mercado.

**PALAVRAS-CHAVE:** Decolonialidade. Ciência. Tecnologia. Inovação. Teoria ator-rede.

**RESUMEN:** El artículo propone, por medio de revisión de literatura, repensar la ciencia y la innovación a través de la perspectiva decolonial, dialogando con la Teoría Actor-Red. Resignándose el inicio de la modernidad en la Conquista de América, se evidencia la constitución de la primera identidad moderna, oriunda de la clasificación entre conquistadores y conquistados en la idea de raza. En ese escenario, el hacer ciencia pasa a ser comprendido deterministicamente, supuestamente objetivo y neutro, como único conocimiento válido. De esta forma, se objetiva reflexionar sobre la discursividad de las ciencias modernas, dando voz a formas distintas de conocimiento. Un intento de denuncia de la Colonialidad del Saber, siendo sugeridas las nociones y los proyectos de la Transmodernidad y de las Epistemologías del Sur. Se concluye que esas otras formas de conocer pueden presentarse como alternativas al orden hegemónico del capital, la cual reproduce el mito del progreso infinito y del control del planeta, sometiendo el conocimiento y las innovaciones al mercado.

**PALABRAS CLAVE:** Decolonialidad. Ciencia. Tecnología. Innovación. Teoría actor-red.

---

## Introduction

This article sets out to rethink science and technological innovation through various reflections by exponents of the decolonial perspective. To this end, the study uses a literature review to make the critical analysis possible.

The aim is to mobilize elementary precepts of the current - and of thinkers who dialogue with it - such as Coloniality of Power, Coloniality of Knowledge, epistemicide, Transmodernity and Epistemologies of the South, in order to highlight issues related to doing science and promoting innovations linked to the modern hegemonic paradigm.

In addition, in order to enrich the debate, reflections and approaches will be made to other theoretical strands capable of dialoguing and contributing to the analysis in question, such as exponents of Actor-Network Theory (ANT), post-ANT authors and decolonial predecessors.

With this in mind, we will first try to understand the starting point of modernity as no longer being the Enlightenment or the end of the 18th century, but rather the Conquest of America, when the construction of the "Other" by the European episteme began. This is considered to be the first modern identity, stemming from the classification of differences between conquerors and conquered in the idea of race.

Still linked to this first scope, an attempt will be made to explain the colonial conformation of the world between the West/Europe, elected to the position of modern or advanced, and the rest of the planet's peoples and cultures. Europe is thus erected as the geographical center and finish line of the temporal movement itself, reimagined by modernity in the idea of progress.

It will then endeavor to show how this global pattern of power, known as the Coloniality of Power, has produced a perspective of knowledge and a way of producing knowledge related to it. In this scenario, doing science comes to be understood solely in a deterministic way, whose claims to objectivity and neutrality are questioned by decoloniality, which is the subject of this study.

It will thus be a work of denouncing science as the only valid and rigorous knowledge, which in this way proclaims its own universality derived from Eurocentrism. The destruction of human beings is combined with the destruction of their knowledge, a phenomenon that will be treated as epistemicide.

To this end, the aim will be to promote an intervention in the discursive nature of the modern sciences, so that different forms of thought can be developed and/or given a voice, making it possible to talk about worlds and knowledge in a different way. An attempt will be

made to denounce the Coloniality of Knowledge, suggesting the notions and projects of Transmodernity and Epistemologies of the South.

Finally, linked to the reflections developed so far, it will delve more specifically into the issue of technological innovation, with the aim of highlighting other ways of knowing that have been systematically subjugated and that can be presented as alternatives to the hegemonic order of capital, which recognizes as innovations only those produced by the "West", reproducing the myth of infinite progress and control of the planet, submitting knowledge, science and innovations to the market.

### **The coloniality of power**

The decolonial perspective is based on reflecting on alternatives to the exclusionary and unequal structure of the modern world, by deconstructing the universal and natural character of capitalist-liberal society (LANDER, 2005, p. 7).

To this end, some basic notions have been developed and attributed to it, among which the Coloniality of Power stands out. This is a notion that promotes the so-called decolonial turn, which argues that coloniality is a constituent of modernity, and that there is no modernity without the former (ESCOBAR, 2003, p. 61; BERNARDINO-COSTA; GROSFOGUEL, 2016, p. 17). As a result, we come to understand that the starting point of modernity is the Conquest of America, and not the subsequent Enlightenment or the end of the 18th century, as is commonly claimed, since it is at this moment that the construction of the "Other" by the European episteme originates (PALERMO, 2019, p. 92).

According to Quijano (2005, p. 117), one of the main exponents of decoloniality, it is through this conquest that America is constituted as the first identity of modernity, through two historical processes, namely the classification of the differences between conquerors and conquered in the idea of race and the association of the historical forms of control of labor, its resources and its products around capital and the world market.

This led to the colonial conformation of the world between the West/Europeans, elected to the position of modern or advanced, and the rest of the peoples and cultures of the planet (LANDER, 2005, p. 9). In the words of Muñoz (2016, p. 58), these processes created the paradox of modernity, which, on the one hand, excludes from the notion of subject those it

considers to be barbaric and uncivilized, while at the same time demanding that this "Other" recognize and accept its legal order and ethical values.<sup>2</sup>

This dichotomy of humans/moderns and "Others" is also denounced, in a similar vein, by authors from other perspectives who are very much in dialogue with and mobilized by decoloniality. Among them are Fanon (1968, p. 30-31), who highlights the Manichaeism of the colonial world, which dehumanizes the colonized, Spivak (2010, p. 47), in his denunciations of colonial epistemic violence, which transforms the colonial subject into an "Other", and Said (1990), who highlights the process of construction of the "Orient" by the "Occident", a notion that likewise distinguishes Europeans from the "Others".

This scenario has also produced other equally important conceptions, leading, for example, to a new perception of historical change. This is highlighted by Quijano (2005, p. 125) as the lie of the concept of modernity, since, from America onwards, a new space/time was constituted, which re-situated "the colonized peoples, as well as their respective histories and cultures, in the past of a historical trajectory whose culmination was Europe" (QUIJANO, 2005, p. 121, our translation). Through this narrative, Europe is simultaneously erected as the geographical center and the finish line of the temporal movement itself (LANDER, 2005, p. 9).

Reinforcing the idea that modernity is a project that began at the time of the Conquest of the Americas, Yehia (2007, p. 97) points out that it was at this time that its binaries began to crystallize. To delve deeper into these issues, the author promotes a fruitful dialog between the decolonial perspective and some of the premises of Actor-Network Theory (ANT), which deserves preliminary mention.

At this point, it is important to highlight some of the predicates of ANT as set out by Latour (1994). The French author seeks to deconstruct the aforementioned founding binaries of modernity, including the distinction between nature and culture/society and the dividing line between subject and object, situated in opposing fields of human and non-human.

The exteriority hitherto attributed to objects, argue the authors of this approach, comes not from an experimental fact, but - and only - from a political-scientific history aligned with a certain conception of what "nature" would be in the Modern Constitution (LATOUR, 2020).

According to Latour (2012, p. 113), the definition of what is or is not an actor, a category suggested by the ANT capable of encompassing both humans and non-humans, comes from

---

<sup>2</sup> This elementary question is further explored by various authors in their specific studies, subjecting them to "case analyses", such as Walsh and García (2002, n.d., our translation), who focus on the Afro-descendant peoples of Ecuador, who "share a history characterized by symbolic, epistemic and structural violence, a violence that, in both its overt and covert forms, is linked to processes of colonial and cultural disciplining".



what it does in a network, emphasizing, however, that the objective of the ANT is not to unite subjects and objects, but rather to explain how the classic division into these two mutually exclusive concepts is misplaced, stating that "there is no relationship between the 'material world' and the 'social world', precisely because this division is a complete artifact" (our translation).

In this sense, Latour (2019, p. 125, our translation) identifies "Two Great Divisions" promoted by the Modern Constitution, one internal and the other external, with the first separating society from nature (humans and non-humans), while the second promotes the distinction between "Us" and "Them", understood as pre-modern, since they would not recognize the first division. The author sees nature and society no longer as distinct poles, but as a single production of "societies-cultures" - which he calls collectives (LATOUR, 2019, p. 175).

The dialog promoted by Yehia (2007) and other considerations about the relationship between ANT and the decolonial perspective will be explored in depth in the following sections, starting with the next one, dedicated to the debate on the coloniality of knowledge and the geopolitics of knowledge.

### **Coloniality of knowledge and geopolitics of knowledge**

Having explained some of the basic premises of decoloniality, especially by bringing up the aforementioned Coloniality of Power, it is pertinent to deepen its analysis, investigating its relationship with the idea of the hegemony of modern science and the subjugation of other forms of knowledge.

Modernity "has produced a perspective of knowledge and a way of producing knowledge that demonstrate the character of the global pattern of power" (QUIJANO, 2005, p. 126, our translation), understood as the process explained in the previous section. In this scenario, doing science comes to be understood solely in a deterministic way, whose claims to objectivity and neutrality must be questioned (LANDER, 2005, p. 7).

Lander (2005, p. 12) points out that the idea of modernity carries with it some basic dimensions, among which is the necessary superiority, in relation to all other existing knowledge, of that which the so-called modern society produces, giving it the quality of science. This premise has turned this form of knowledge, concealed by the veil of scientificity, into the only valid, objective and universal form of knowledge (LANDER, 2005, p. 13).

Similarly, Walsh (2006, p. 30) denounces this positioning of Eurocentrism and Westernism as the sole model of knowledge, dismissing other world populations, such as Africans and indigenous peoples, as intellectuals or producers of knowledge.

This is, according to Bernardino-Costa and Grosfoguel (2016, p. 18), the election of Europe as the locus of global enunciation. In other words, as part of the new pattern of world power, Europe has also hegemonically concentrated all forms of control over subjectivity, culture, and especially the production of knowledge (QUIJANO, 2005, p. 121), under the mantra of science as the only valid and rigorous knowledge (SANTOS, 2008, p. 14), which thus proclaims its own universality derived from Europe's position as the center (ESCOBAR, 2003, p. 60).

Grosfoguel (2016, p. 25) emphasizes this epistemic privilege of the "West", which subjugates the knowledge produced by other political bodies, a situation he calls the geopolitics of knowledge. This monopoly generates "structures and institutions that produce epistemic racism/sexism, disqualifying other knowledges and other critical voices in the face of the imperial/colonial/patriarchal projects that govern the world-system" (GROSFOGUEL, 2016, p. 25, our translation).<sup>3</sup>

This dynamic is also highlighted by Palermo (2019, p. 93-94), who explains that colonialism "denies contemporaneity to societies that do not respond to the Western paradigm [...], leaving them in the status of primitive, barbaric, incapable of producing any form of knowledge", and by Spivak (2010, p. 48, our translation), an author who is very much in dialogue with decoloniality, who denounces so-called subjugated knowledge.<sup>4</sup>

Colonialism thus combined the destruction of human beings with the destruction of knowledge (GROSFOGUEL, 2016, p. 26), a phenomenon called epistemicide by Santos (2009) in his study on the Epistemologies of the South, understood as epistemological fascism, responsible for the "forced conversion and suppression of non-Western knowledge carried out by European colonialism and which continues today in forms that are not always the most subtle" (SANTOS, 2008, p. 28, our translation).

---

<sup>3</sup> The author, like other exponents of decoloniality, dialogues with Wallerstein (1999), especially regarding the notion of world-system, which provides another perspective for analyzing social development, no longer based on separate societies, as autonomous structures, but rather on a wide range of global interrelationships, called the world-system.

<sup>4</sup> The author defends the need to "measure the silences" (SPIVAK, 2010, p. 64, our translation), an idea present in the decolonial denunciation of the classification of peoples through the notion of race, which promoted "a process of concealment, forgetting and silencing of other forms of knowledge that energized other peoples and societies" (BERNARDINO-COSTA; GROSFOGUEL, 2016, p. 18, our translation).

For Grosfoguel (2011), epistemicides must therefore be seen in an interconnected way, as constitutive parts of the capitalist, patriarchal, Western, Christian, modern and colonialist world system<sup>5</sup>. In his works, the same author also identifies and lists some epistemicides<sup>6</sup>:

[...] the conquest of the Americas in the 16th century extended the process of genocide/epistemicide that began with the conquest of Al-Andalus to new subjects, such as indigenous peoples and Africans, while at the same time stimulating the new racial logic of genocide/epistemicide by Christians against Jews and Muslims in Spain (GROSGOQUEL, 2016, p. 41, our translation).

Returning to the dialog promoted by Yehia (2007) between ANT and the decolonial perspective, which began in the previous section, it is pertinent to point out that performativity<sup>7</sup>, a central element of that theoretical strand, presupposes the suspension of modernist logic, its categories and the hierarchies of power/knowledge. All of these are deprived of the authority given to them by modernity (YEHIA, 2007, p. 96). In Latour's words (2019, p. 59, our translation), "the more science is absolutely pure, the more it is intimately linked to the construction of society", and it is therefore necessary to simultaneously overcome the "Two Great Divisions" explained in the previous section, so that we no longer believe in the radical distinction between humans and non-humans and "in the total superposition of knowledges and societies between each other" (LATOURE, 2019, p. 127, our translation).

For the author, "while ANT addresses power structures by making them obsolete through practice, the decolonial perspective looks at how power structures themselves have taken shape" (YEHIA, 2007, p. 96, our translation). In any case, both make it possible to unmask the mechanisms through which the rhetoric of modernity and the logic of coloniality are manifested, responsible for the systematic subalternization of other knowledges (YEHIA, 2007, p. 105).

---

<sup>5</sup> It is pertinent to mention Marisol de la Cadena (2018), a Peruvian author who, using different premises, studies different ways of life, as well as this modern relationship that generates conflicts, which she classifies as ontological. In her analysis, she suggests the existence of a condition called *Anthropo-blind*, in a play on words with the well-known geological era *Anthropocene*. This would be the situation in which heterogeneous worlds, which do not make use of the modern logic of ontological separation between humans and non-humans, are forced to operate with this distinction, although they conflict with it and end up exceeding it.

<sup>6</sup> Grosfoguel (2016, p. 41, our translation) also identifies and relates a fourth epistemicide, namely "the conquest and genocide of the women who transmitted Indo-European knowledge in European territories [...] responsible for safeguarding ancestral knowledge".

<sup>7</sup> Callon (2009, p. 384, our translation), an author who works from the perspective of ANT, points out that the sciences in general, particularly the social sciences, "play a 'co-formative' role, actively contributing to establishing the reality that they themselves analyze". This means that research and reality are mutually produced (YEHIA, 2007, p. 95) and that reality is multiple, since ontology is "made" (performed or acted upon) in these practices (MOL, 2002).



The modern logic of time and progress is also addressed by ANT. According to Latour (2019, p. 86), moderns understand time as something that abolishes the past before it - an irreversible arrow. In this sense, modernization, in a similar way to that explained by decolonial critique, would start from the assumption of a hierarchy of cultures and knowledge, consisting of leaving a dark age, which mixed the needs of society with scientific truth, "to enter a new age that will finally distinguish clearly between what belongs to intertemporal nature and what comes from humans" (LATOURE, 2019, p. 90, our translation).

Within this panorama outlined so far, Lander (2000, p. 26) suggests the notion of Coloniality of Knowledge, through which he intends to highlight the articulation of scientific knowledge with forms of colonial and neo-colonial domination, with the aim of demonstrating that this is not only related to the past, but that it still plays a central role in the imperial and neo-colonial domination of the present. As a result, the author points to the need to overcome the Eurocentric and universalist discourses of Western knowledge.

This need is also defended by Escobar (2003, p. 53, our translation), in order to promote intervention in the discursiveness of the modern sciences in order to configure "another space for the production of knowledge - a different way of thinking, another paradigm, the possibility of talking about worlds and knowledge in another way". Palermo (2019, p. 157, our translation) also stresses the need to perceive "the modern project as a construction, an 'invention' of the power that hegemonizes, placing it on a par with - and in contrast to - other ways of knowing".

Faced with this need, Enrique Dussel proposes Transmodernity, as a project based on epistemic diversity, in order to decolonize and depatriarchalize relations, no longer centred on Eurocentric and dominant epistemologies (GROSFOGUEL, 2016, p. 44). In the words of the proposal's author:

When I talk about Transmodernity, I'm referring to a global project that seeks to transcend European or North American modernity. It is a project that is not postmodern, since postmodernity is a still incomplete critique of Modernity by Europe and North America. Instead, Transmodernity is a task that is, in my case, expressed philosophically, whose starting point is what has been discarded, devalued and judged useless among global cultures, including colonized or peripheral philosophies. This project involves developing the potential of cultures and philosophies that have been ignored, at their own resources, in constructive dialogue with European and North American Modernity (DUSSEL, 2008, p. 19, our translation).

Transmodernity is thus about "recognizing epistemic diversity without epistemic relativism" and the "need for a shared global project against capitalism, patriarchy, imperialism and colonialism" (GROSFOGUEL, 2016, p. 45, our translation), promoting a "Transmodern

Pluriverse" (DUSSEL, 2008, p. 45, our translation), a liberation project in which the Other is also realized, but in a transcendent way, in which both Modernity and its denied Otherness are correlated (DUSSEL, 2005, p. 31).

For his part, Santos (2008, p. 1, our translation) proposes the Epistemologies of the South, aimed at "recovering the knowledge and practices of social groups that, through capitalism and colonialism, have been historically and sociologically placed in the position of being only the object or raw material of dominant knowledge".

To this end, the Lusitanian author chooses as one of the central concepts of his proposal the Ecology of Knowledges, understood as the recognition of the plurality of knowledges in the world, so that "knowledge only exists as a plurality of knowledges, just as ignorance only exists as a plurality of ignorances" (SANTOS, 2006, p. 27, our translation).

The challenge, therefore, is to overcome this paradigm of one-size-fits-all thinking, in order to "investigate other knowledges, other practices, other subjects, other imaginaries capable of keeping alive the flame of alternatives to this social order of capital hegemony" (LANDER, 2000, p. 42, our translation). A recovery of the Epistemologies of the South, understood as the practices and knowledge of social groups that have been subjugated by dominant knowledge, considered to be the only valid knowledge, in order to include as many experiences of world knowledge as possible (SANTOS, 2008, p. 11). This quest will be further explored in the next section, by discussing technological innovation from a decolonial perspective, in a reflection that aims to overcome this hegemony.

### **Technological innovation from a decolonial perspective**

The explicit search to overcome the paradigm of the single thought, the imposition of the Coloniality of Power and Knowledge, highlighting other ways of knowing that have been systematically subjugated and that can present themselves as alternatives to the hegemonic order of capital, requires a reflection on the very relationship between science, (technological) innovations and this order of capital, in its colonial and neocolonial spheres.<sup>8</sup>

This submission of forms of work, resources and their products has already been highlighted by Quijano (2005). Palermo (2019), in turn, bringing dialogue to some even more contemporary aspects, such as technological innovations, proclaims that all devices are aimed

---

<sup>8</sup> Through somewhat different objects of study, Svampa (2016) and Gudynas (2012) also address the relationship between science and neocolonialism, especially in their denunciations of neodevelopmentalist extractivism, which they identify in Latin America in recent decades.

at consolidating this domain, be it “the system of thought and, essentially, both schooling and as that exercised by the social group, and overdetermined today by technology” (PALERMO, 2018, p. 155, our translation).

In this scenario, technological innovations, understood only as those produced by the locus of scientific enunciation that self-identifies as the “West” – at best, passively imported by the “Others” – reproduce the “Faustian myth of infinite progress, of control of the planet in its natural and human dimensions in favor of those who have control over it” (PALMERMO, 2018, p. 158, our translation).

Lander (2005, p. 17, our translation) explains this logic, in which “science and technology are conceived not only as the basis of material progress, but as the origin of the direction and meaning of development”. In this way, only the forms of knowledge endorsed by the modern process and hegemonic power are considered appropriate for development plans, that is, those originating from specialists, trained in the Western tradition (ESCOBAR, 1995).

All science and scientists end up subjected to this logic. In the words of Krenak (2019, p. 31), “[...] the scientists are finished. Every person who is capable of bringing an innovation to the processes we know is captured by the machine for making things, the commodity”. Therefore, there is an urgent need to think about technology and innovations beyond monetized processes and the coloniality of power and knowledge intrinsic to this relationship.

In this regard, it is interesting to highlight the concept of Knowledge Economy, best developed by Stengers (2015, s.n., our translation), understood as the reorientation of research policies through partnership with industry, given a fundamental role in research financing. The author denounces how this, in practice, “means giving industry the power to directly direct research and dictate its success criteria (patent registration, notably)”.

Resuming, for the last time, precepts relating to Actor-Network Theory, placing them in dialogue with the question and perspective under analysis, it is important to highlight that that theoretical aspect focuses heavily on doing science and innovation through the dynamics of networks and its actants. This generates some consequences, among them the recognition of the fact that innovation is a collective process, about which no one knows the destination, since “in fact there is no origin, as success depends on the adaptations and transformations made by all those that take control of innovation” (CALLON, 2004, p. 72, our translation).

Based on this network model, the adoption of an innovation itself is seen as a process, in which adaptations and socio-technical compromises occur. It is the circulation of innovation that creates what Callon (2004, p. 71, our translation) calls a sociotechnical network, that is, a

“set of actors who, participating in one way or another, most often in a modest way, to conception, elaboration and adaptation of innovation, they see themselves sharing the same destiny”.

Progressively, the interests, projects and actions of actors, human and non-human, are adjusted and coordinated, so that for each innovation it is not possible to determine its origin, “since success depends on the adaptations and transformations made by all those that take over” (CALLON, 2004, p. 72, our translation). In a similar sense, Latour (2000, p. 53, our translation) states that “the construction of facts and machines is a collective process”.

This gives all actors in the network possibilities for strategic choices. However, even more important, he highlights, reinforcing issues already addressed by decoloniality itself, such as science and innovations are not pure and neutral, carrying and being carried by other influences, coming from social and economic spheres, especially from their hegemonic powers.

This time, the decolonial perspective, enriched with other reflections that can greatly contribute to the analysis, allows us to rethink the theme of technological innovations, linking them with the colonial and neocolonial context itself, forged in the Coloniality of Power and Knowledge, and in its relationship with market hegemony, dictating the steps of the very definition of what an innovation is, and who can produce it or just accept it.

### **Final considerations**

Through this work, science and technological innovation were rethought through diverse reflections elaborated by exponents of the decolonial perspective. To this end, elementary current precepts were mobilized, such as Coloniality of Power, Coloniality of Knowledge, epistemicide, Transmodernity and Epistemologies of the South, highlighting questions about doing science and promoting innovations linked to the modern hegemonic paradigm.

In order to enrich the debate, in addition, some specific observations and approaches were promoted with other theoretical aspects, such as ANT, post-ANT and decolonial predecessors. The promotion of these dialogues deepened critical analysis, especially with regard to criticisms of modernity and hegemonic scientific and development models.

Thus, a new understanding was established regarding the initial milestone of modernity, relocating it to the Conquest of America. At that moment, the construction of the "Other" by the European episteme began, emerging as the first modern identity, arising from the

classification of differences between conquerors and conquered in the idea of race, a key element of the so-called Coloniality of Power.

This colonial conformation of the world between Western/European, elected to the position of modern or advanced, and the rest of the peoples and cultures of the planet, erected Europe as the geographic center and the finishing line of the temporal movement itself, reimagined by modernity in the idea of progress.

The new global pattern of power, thus, produced a perspective of knowledge and a way of producing knowledge related to it. In this scenario, doing science began to be understood in a deterministic, supposedly objective and neutral way, being considered the only valid and, therefore, universal knowledge.

As a result of this claim to universality, the destruction of human beings carried out by colonialism was combined with the destruction of their knowledge, a phenomenon addressed as epistemicide. Having overcome this issue, the objective was to highlight different forms of thought that allow us to talk about worlds and knowledge in a different way, in a true attempt to denounce the Coloniality of Knowledge, with the notions and projects of Transmodernity and Epistemologies of the South being suggested, presenting its central elements and issues.

In addition, linked to the reflections developed so far, the issue of technological innovation has been further detailed, in an attempt to highlight other ways of knowing that have been systematically subjugated and that can, armed with the critical reflections made, present themselves as alternatives to the hegemonic order of capital, which recognizes as innovations only those produced by the "West", leaving the "Others" only to accept them.

That said, the conclusion is that there is a need to rethink and stop reproducing the myth of infinite progress and control of the planet, which subjects knowledge, science and innovation to the market.



## REFERENCES

- BERNARDINO-COSTA, J.; GROSGUÉL, R. Decolonialidade e perspectiva negra. **Revista Sociedade e Estado**, [S. l.], v. 31, n. 1, jan/abr 2016.
- CADENA, M. Natureza incomum: histórias do antrope-cego. **Revista do Instituto de Estudos Brasileiros**, [S. l.], v. 69, p. 95-117, 2018.
- CALLON, M. A cooerformação das ciências e da sociedade: entrevista com Michel Callon. **Revista Política & Sociedade**, [S. l.], n. 14, abr. 2009.
- CALLON, M. Por uma nova abordagem da ciência, da inovação e do mercado: o papel das redes sócio-técnicas. *In*: PARENTE, A. (org.). **A trama da rede**. Porto Alegre: Sulina, 2004.
- DUSSEL, E. A new age in the history of philosophy: the world dialogue between philosophical traditions. **Prajña Vihâra**, [S. l.], v. 9, n. 1, jan./jun. 2008.
- DUSSEL, E. Europa, modernidade e eurocentrismo. *In*: LANDER, E. (coord.). **Ciências sociais: saberes coloniais e eurocêtricos**. Buenos Aires: CLACSO, set. 2005.
- ESCOBAR, A. Mundos y conocimientos de outro modo: el programa de investigación modernidad/colonialidad latino americano. **Tabula Rasa**, [S. l.], n. 1, jan./dez. 2003.
- FANON, F. **Os Condenados da Terra**. Rio de Janeiro: Ed. Civilização Brasileira, 1968.
- GROSGUÉL, R. Decolonizing post-colonial studies and paradigms of political-economy: transmodernity, decolonial thinking and global coloniality. **Transmodernity: Journal of Peripheral Cultural Production of the Luso-Hispanic World**, [S. l.], v. 1, n. 1, 2011.
- GROSGUÉL, R. A estrutura do conhecimento nas universidades ocidentalizadas: racismo/sexismo epistêmico e os quatro genocídios/epistemicídios do longo século XVI. **Revista Sociedade e Estado**, Brasília, v. 31, n. 1, jan-abr. 2016.
- GUDYNAS, E. O novo extrativismo progressista na América do Sul: teses sobre um velho problema sob novas expressões *In*: **Enfrentando os limites do crescimento: Sustentabilidade, decrescimento et prosperidade** [en ligne]. Marseille : IRD Éditions, 2012.
- KRENAK, A. **Ideias para adiar o fim do mundo**. São Paulo: Companhia das Letras, 2019.
- LANDER, E. ¿Conocimiento para qué? ¿Conocimiento para quién? Reflexiones sobre la universidad y la geopolítica de los saberes hegemónicos. **Estudios Latinoamericanos**, [S. l.], v. 7, n. 12-13, jan. 2000.
- LANDER, E. Ciências sociais: saberes coloniais e eurocêtricos. *In*: **A colonialidade do saber**. Eurocentrismo e ciências sociais. Perspectivas latino-americanas. São Paulo: CLACSO, 2005.
- LATOUR, B. **Jamais fomos modernos: ensaio de antropologia simétrica**. 1. ed. Rio de Janeiro: Ed. 34, 1994.

LATOUR, B. **Ciência em ação**: como seguir cientistas e engenheiros sociedade afora. São Paulo: Editora Unesp, 2000.

LATOUR, B. **Reagregando o social**. Salvador: Edufba, 2012.

LATOUR, B. **Jamais fomos modernos**: ensaio de antropologia simétrica. 4. ed. Rio de Janeiro: Ed. 34, 2019.

LATOUR, B. Onde aterrar? **PISEAGRAMA**, Belo Horizonte, n. 14, p. 100-109, 2020.

MOL, A. **The body multiple**: ontology in medical practice. Londres: Duke University Press, 2002.

MUÑOZ, K. O. (Re)pensar el Derecho y la noción del sujeto indio(a) desde una mirada descolonial. **Revista Internacional de Comunicación y Desarrollo**, [S. l.], v. 4, 2016.

PALERMO, Z. Lugarizando Saberes. **Cadernos de Estudos Culturais**, Campo Grande, MS, v. 2, jul./dez. 2018.

PALERMO, Z. Alternativas locais ao globocentrismo. **Revista Epistemologias do Sul**. Dossiê: Giro decolonial II Gênero, raça, classe e geopolítica do conhecimento. v. 3 n. 2. 2019.

QUIJANO, A. Colonialidade do poder, eurocentrismo e América Latina. In: LANDER, E. (org.). **A colonialidade do saber**: eurocentrismo e ciências sociais. Buenos Aires: CLACSO, set. 2005.

SAID, E. W. **Orientalismo**: o Oriente como invenção do Ocidente. Tradução Tomás Rosa Bueno. São Paulo: Companhia das Letras, 1990.

SANTOS, B. S. A filosofia à venda, a douda ignorância e a aposta de Pascal. **Revista Crítica de Ciências Sociais**, [S. l.], v. 80, mar. 2008.

SPIVAK, G. C. **Pode o subalterno falar?**. Belo Horizonte: Editora UFMG, 2010.

STENGERS, I. **No tempo das catástrofes**: resistir à barbárie que se aproxima. São Paulo: Cosac Naify, 2015.

SVAMPA, M. Extrativismo neodesenvolvimentista e movimentos sociais. Um giro ecoterritorial rumo a novas alternativas? In: DILGER, G.; LANG, M. L.; PEREIRA FILHO, J. (org.). **Descolonizar o imaginário**. Debates sobre pós-extrativismo e alternativas ao desenvolvimento. Fundação Rosa Luxemburgo: Elefante Editora, 2016.

WALLERSTEIN, I. **Impensar las ciencias sociales**: límites de los paradigmas decimonónicos. 2. ed. Ciudad de México: Siglo Veintiuno Editores, 1999.

WALSH, C. Interculturalidad y (de)colonialidad: diferencia y nación de otro modo. In: **Desarrollo e interculturalidad, imaginario y diferencia**: la nación en el mundo andino. Quito: Academia de la Latinidad, 2006.

WALSH, C.; GARCÍA, J. El pensar del emergente movimiento afroecuatoriano: Reflexiones (des)de un proceso. *In*: MATO, D. (Comp.) **Estudios y otras prácticas intelectuales latinoamericanas em cultura y poder**. Caracas, Venezuela: CLACSO, Consejo Latinoamericano de Ciencias Sociales, 2002.

YEHIA, E. Descolonización del conocimiento y la práctica: un encuentro dialógico entre el programa de investigación sobre modernidad /colonialidad/decolonialidad latinoamericanas y la teoría actor-red. **Tabula Rasa**, [S. l.], n. 6, 2007.

### ***CRedit Author Statement***

---

**Acknowledgements:** Do not apply.

**Financing:** Do not apply.

**Conflict of interest:** There is no conflict of interest.

**Ethical approval:** It respected the ethical procedures, but it did not go through an ethics committee, since it is only a literature review.

**Availability of data and material:** The research did not include a case study or a field trip, and no data was generated. The bibliographical references (and access links, when available) are all given in the article itself.

**Authors' contributions:** Single author.

---

**Processing and editing: Editora Ibero-Americana de Educação.**  
Proofreading, formatting, normalization and translation.

