

Extinction as Crisis: design between technocratic modernity and the regeneration of situated knowledges

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ABSTRACT

This article proposes a theoretical reflection on the crisis of extinction as a multidimensional process that transcends the disappearance of biological species, manifesting also in the sociocultural sphere through the erosion of knowledges, artisanal practices, and situated ways of life. The objective is to understand the ambivalent role of design, historically aligned with capitalist and technocratic logic that accelerates these extinction processes, but also potentially capable of acting as an agent of regeneration when adopting participatory and situated approaches. Based on a non-systematic literature review, the article articulates discussions on the concept of extinction, the critique of modernity, the Anthropocene, and situated knowledges, proposing an original reading that connects these debates to the field of design. It is argued that although the extinction of certain practices seems inexorable in the face of hegemonic global forces, participatory and regenerative design strategies can open pathways for the re-signification and strengthening of threatened cultures. The conclusion points to the need for design to abandon its technocratic and centralizing posture, repositioning itself as a mediator of intercultural dialogues and co-creator of possible futures anchored in local knowledges.

Keywords: Extinction; Design; Anthropocene; Situated Knowledges; Regeneration.

INTRODUCTION

Extinction, in common sense, is often associated with the disappearance of biological species, a phenomenon widely discussed in the field of environmental sciences amidst contemporary ecological crises. However, reducing the concept of extinction solely to the biological sphere implies ignoring its complexity and multiplicity of manifestations. Extinctive processes also occur on sociocultural, economic, and epistemological scales, affecting knowledges, practices, artisanal crafts, and situated ways of life. In this context, design emerges as an ambivalent agent: while historically it has contributed to processes of cultural homogenization and erosion of traditional knowledges, it can act as an agent of regeneration and resistance when adopting participatory, collaborative, and situated approaches.

This article derives from doctoral research, whose central investigation revolves around the relationships between craftsmanship, extinction of knowledges, and regenerative practices anchored in participatory design. This is a theoretical essay that seeks to understand the extinction crisis as a process inherent to the current civilizational paradigm, exploring how design, when reconnected to artisanal practices and situated dynamics, can act as an agent of transformation. The assumption is that extinction is not an isolated phenomenon, but a

continuous and multifaceted process, driven by sociopolitical, economic, and technological dynamics in which design is deeply implicated.

As Escobar (2016) argues, modern design, aligned with capitalist and technocratic logic, often reinforces structures of domination, accelerating the erosion of traditional knowledges. However, the same author points to alternative paths, in which design can reposition itself as a participatory, collaborative, and situated practice, valuing local knowledges and promoting regeneration processes. This perspective resonates with the critiques of Haraway (1995) and Santos (2022) about the need to decolonize epistemologies and recognize the validity of pluriversal knowledges.

The reflection proposed here dialogues with authors who discuss the Anthropocene (Danowski & Viveiros de Castro, 2017; Latour et al., 2018), the crisis of modernity (Löwy, 2013), and the possibilities of regenerative design (Escobar, 2016). In conclusion, it is expected to demonstrate that although the extinction of certain practices seems inexorable in the face of hegemonic global forces, participatory design strategies can offer alternatives for the preservation, re-signification, or regeneration of threatened knowledges, strengthening the agency of communities in their own territories.

1. EXTINCTION AND CRISIS: rethinking the place of design

In common sense, extinction is considered when an end event occurs, when certain organisms are no longer present in the environment. Thus, there are various types of extinctions, concentrated at local, regional, and global scales. This concept is directly linked to the field of biology, being extensively explored in research within this area, especially concerning contemporary environmental crises.

However, it would be naive to restrict the term extinction solely to the environmental perspective. There are not only different scales of geolocation, but multiple chain extinction processes, involving sociopolitical and socioeconomic issues. Extinction does not only occur among the species living on the planet; it also manifests in the process of ruining the different procedural articulations in marginalized groups, in the erasure of peoples' culture, in the annihilation of pluriversal knowledges, practices, and intellectualities.

It is precisely at this point that design reveals itself as a strategic field of analysis. From the set of manual specializations to the set of modern gears, how is the extinction of ancestral modes linked to design? To answer this question, it is necessary to critically examine the trajectory of modern design and its alignment with the Western civilizational project.

1.1. Modern Design as a Vector of Crisis

In "Autonomía y Diseño," Escobar (2016) states that we are immersed in the crisis of Western capitalist modernity. This crisis affects ways of life, and, in resistance, social groups fight for transitions in defense of the diversity of perspectives in territories and cultures.

Escobar holds design responsible for maintaining this crisis, stating that most design treatises have a technocratic orientation, centered on the market, without problematizing its capitalist nature. The critique deepens by establishing that the dominant norm of design operates as a process orchestrated by specialists, focused on the object, when its concern should be oriented toward participatory and collaborative processes.

This reflection on design reflects historical occurrences that configured innovation processes based on the evolution of technologies and exclusionary social organization. Initially, design brought together arts and crafts with appreciation of manual practices. However, this relationship was dissociated in the name of machinery development, a movement that led design to undergo a revolution promoted by the thinking of industrial production and consequent consumerism, leveraged by the Industrial Revolution.

Ribeiro (2014) reflects that the Industrial Revolution became a milestone in global production, with characteristics related to the strengthening of capitalism, expanding in society behavior toward the modern, attenuating changes in lifestyles and profit generation from increased consumption.

This positioning promotes a divorce between knowledges. As a characteristic of non-industrial production, there is the integration between manual skills and intellectuality, a contrary perspective to industrial production, where work and specializations are established separately (Lima, 2015).

With new technologies, attention to innovations reshaped relationships and the notion of well-being. Freire and Oliveira (2017) observe that throughout the twentieth century, research and development of new technologies affected our notion of well-being. Construction technology enabled more people to inhabit the same space. Families reduced in size and contact. Demographic density increased, but social relationships became more superficial. Factories became more productive and brought products that guided our perception of quality of life.

Society underwent mutations with the establishment of technological innovation and mass production. There was a reformulation of the notion of consumption, work, relationships with materials and objects, as well as changes in the economic context.

Consequently, these mutations today culminate in the most different crises, among them those related to the environmental dimension. Löwy (2013, p. 81) is incisive: "if you don't want to talk about capitalism, it's useless to talk about the environment, because the issue of environmental devastation is a product of the capital accumulation process."

Roos (2012), reflecting on species extinction, observes that to protect resources, organizations created legislation that promises to protect the environment, but these are not complied with. The author points to environmental education through collective awareness as an opportunity for crisis mitigation.

Löwy (2013) states that the economic and ecological crises derive from the same center: a system where resources are transformed into commodities. The author considers that these crises are connected in the creation of the "crisis of modern industrial capitalist civilization." This system privileges a social minority that affects production, consumption, and housing for the mass of the population.

Oliveira (2022) synthesizes: we are going through a delicate moment identified in the various conjugated crises: social, economic, political, ecological, and climatic. They are multiple crises that overlap, shake the system, and deliver to us as the "final product" planetary imbalance.

Regarding the consequences of modernity, Schmidt (2018) concludes with the presentation of crises arising from industrial revolutions. The author brings global economic domination by the West as a motto for subsequent crises. There were changes in education, science, and

technology, as well as a significant increase in military power. Another outcome was the acceleration of changes in aspects of life, as modernity extended empowerment for the transformation of nature.

Schmidt (2018, p. 417) states that these dynamics were potentiated by radical technology, by the reserve of capital and specialized knowledge. "Competitive pressure in the economy adds stimulus to incessant innovation."

The consequences of these changes denote another type of extinction: the extinction of behaviors based on collectivism and cooperation. Integrative relationships are extinguished, giving way to concern with work that generates profit, innovation that shapes harmful behaviors, and immediate lifestyles, harming common development.

1.2. Situated Knowledges as an Epistemological Alternative

Escape from this place of extinction can be directed toward an ontological and, above all, epistemological proposal of situated knowledge, as presented by Selister-Gomes, Quatrin-Casarin, and Duarte (2019). Initially, the argument about situated knowledges stems from the problem of "scientific neutrality," an inheritance of the trajectory of scientific knowledge since modern science, through cultural and postcolonial studies alongside the growth of the feminist movement (Weber, 1986), reaching the idea of "situated knowledge" proposed by Haraway (1995).

As an example of this perspective, Nascimento (2017), in her dissertation "Por uma pedagogia crioula: memória, identidade e resistência no quilombo de Conceição das Crioulas" [For a Creole Pedagogy: Memory, Identity, and Resistance in the Quilombo of Conceição das Crioulas], brings the structuring of didactic-educational practice with bases rooted in situated axes: territory, history, identity, organization, local knowledges, gender, and interculturalities. The author shows the possibility of conceiving a school oriented beyond the pre-established norms of existing curricula, that is, a school aligned with the desires of the territory, acknowledging its struggles, practices, knowledges, ancestralities, and the very social configuration of the territory where it operates. The didactic-pedagogical axes that the author brings as a basis for this conception of school were gathered collaboratively, thus proposing a situated school.

It is possible to perceive the inauguration of two paths for reflecting on situated knowledge: the critique and rupture of social models originating from modern society and the establishment of hegemonic and centralizing science. For the construction of the idea of situated knowledge, both paths must be considered: the situated in the approach to place, context, or territory, and the situated in the epistemological approach that breaks with hegemonies in scientific knowledge.

Just as Nascimento (2017) proposes a pedagogy situated in the quilombola territory, participatory design can draw inspiration from these territories, histories, and local knowledges to reflect on design methodologies that not only respect but are literally shaped by these realities, acting in the regeneration of threatened knowledges-practices. This connection is fundamental to repositioning design as a practice capable of operating/mediating from within local contexts, rather than upon them.

A possible path would be to think about the situated proposal of the civilizational modes of indigenous peoples, Afro-descendants, and rural societies and their knowledges, as defended

by Escobar (2016), especially in Latin American society. This is a possible path to reverse the consequences of crises arising from the Western modern civilization model.

Bispo dos Santos (2015) gifts us with his view from the perspective of belonging, native to the place of speech. The author presents, in counterpoint to the understanding of colonialist processes, the terms organic knowledge and synthetic knowledge. The first term refers to the knowledge that the land provides, the preservation of oralities as they are, the proper forms of recording, the observation and listening to the experience closest to the ancestors. The author also explains what he understands by synthetic knowledge: this type of knowledge comes from studies on natural medicinal herbs, homeopathy, and therapeutic treatment through plants. For Bispo dos Santos (2015), this term also characterizes synthetic and unreflective scientists who consider the use of herbs as witchcraft activity. The author responds to these "scientists" by stating that if synthetic scientists claim to perform miracles, then quilombola natives know how to perform spells. The author further inquires: "We'll see who wins, whether it's your miracle or my spell. What they call popular, empirical knowledge, I call organic knowledge" (Bispo dos Santos, 2015, p. 90).

It is worth bringing what Escobar (2016) defends about the direction toward situated knowledges in design: looking at the knowledges and practices from "within," knowledges of the holders of generational and relational knowledge toward exiting the crises imposed by Western modern civilization. Especially in the use of interactivity for the situated, that is, digital technologies at the service of place with respect to that place, its time, knowledges, and processuality. Knowledge and practice must be strongly correlated, lacking reflexive and practical return regarding the pre-modern era practice, to the anteriority of the process of extinction of manualities by the "asteroid of innovations."

2. DESIGN, ANTHROPOCENE, AND THE IMMINENCE OF THE END

Instability is a premise of open processes; in it, the search is not based on equilibrium or homogenization. Dealing with instability in broad processes requires a free positioning to contemplate different perspectives democratically, actively, heterogeneously, and participatively. That said, the option follows the objective direction of the issue of instability from the perspective of coexistence of the different crises that place the world in an era of chaos.

Design is inserted in the unstable world and, by singularity, helped to promote chaotic aspects in societies. To design today, Guedes (2010, p. 14) indicates a path: "[...] there is a need for the search and re-encounter of memories, traditions, and feelings of the past in order to compensate for the instability of the present."

Initially, when casting vision to reflections on design amidst instability, one can consider the historical factor of the emergence of the design field. Nowadays, it is possible to go further, focusing on the Anthropocene, because in it there is depth to deal with the idea of extinction, reaching what is here recognized as extinction of situated practices. When conducting a broad literature review on the concept of the Anthropocene, Mendes (2022) states that this term and its concept emerge in the last year of the second millennium, therefore being a recent term, but widely covered since then.

Chronologically arranging the discussion, Milani (2022) discriminates the historical events that most bring us closer to the beginning of the Anthropocene: the colonization of the

Americas (1492 to 1800), the Industrial Revolution (from 1760 to the present), the activation of nuclear weapons (from 1945 to the latest wars), and the strong presence of industrial chemical products (from 1950 to the present).

The cluster of these historical events led Eugene F. Stoermer to coin, in the 1980s, the term Anthropocene, defining it as one of the names given to the new geological era that planet Earth is experiencing, where human activities and agencies began to have significant global impact on climate and the functioning of its ecosystems, modifying the course of the planet's thermodynamic regime (Latour et al., 2018). Coined by Stoermer in the 1980s and popularized by Crutzen in the early 2000s, the concept of the Anthropocene has been widely debated since then (Mendes, 2022).

It is in the debate on the Anthropocene that many discussions on climate crises because of the relationship that human beings have established with the planet are found. Meyer (2020) brings the notion that man himself is victim and villain in this process, responsible for his agencies. This victim-villain relationship is clearly identified in Roy Scranton's accounts, when he decides to report in the essay "Learning How to Die in the Anthropocene" his experiences as a former American soldier in Iraq: "Civilizations marched blindly toward disaster because humans are programmed to believe that tomorrow will be much like today" (Scranton, 2015, p. 1).

As designers, we must concern ourselves with these issues. Does the Anthropocene guarantee us a trajectory toward a catastrophic future? Milani (2022, p. 63) states that "there is no denying that the climate change crisis and the Anthropocene, as emergencies of the present, are considered disruptive elements in the history of the connection between past and future."

We recognize as the most complete concept what Danowski and Castro (2017) propose. For them, the Anthropocene concerns the epoch, in a geological sense, in which the end of the "epochality" of species occurs. A time that began with humans and that potentially will not end with them, with us. According to the authors, the Anthropocene will conclude, giving way to another geological epoch, long after the disappearance of "fragile" humans. The authors reaffirm that the time today is the Anthropocene. However, there is no sequence for us in it. This should not paralyze us but stimulate us to the urgent and imperative task of its mitigation.

On living in the Anthropocene, Milani (2022) notes that we are experiencing one of the cruelest pandemics in recent human history, the progressive decline of biodiversity, the exacerbation of deforestation rates in all Brazilian biomes, in addition to urgent climate demands that configure as matter for major multilateral debates about state responsibility. Furthermore, Milani (2022) argues that the problematization of development models, agricultural and mining strategies, economic-environmental recovery programs, the transition of scenarios in relation to ecology, the adoption of initiatives aimed at overcoming harmful energy models, in addition to established consumption patterns and lifestyles, are paths for crisis inflection. The author reiterates that these debates raise the need for reinvention of ways of life and societal articulation, rethinking current economic and political models to negotiate the overcoming of these crises imminently, in the short and medium term.

Milani (2022) also makes an important observation about the deepening of the Anthropocene theme by stating that it was from the entry of social sciences into this discussion that the concept of the term was further enriched, emerging new signifiers and limitations previously unnoticed about the responsibility of humanity as a homogeneous whole.

Coexistence with the Anthropocene should awaken in human beings the stimulus for the search for ruptures in the gears that fuel present crises. Is there still time? Or does the point of return no longer guarantee us strategies? Humanity has already surpassed the point of return. Attention should no longer revolve around return to equilibrium, but around the ways we will deal with the crises we experience and those we will still experience.

Scranton (2015) brings important questions: What does it mean to be human? What does my life mean in the face of death? What does human existence mean after one hundred thousand years of climate change? What does one life mean compared to the extinction of several species or in relation to the collapse of global civilization? How will we make meaningful choices in the shadow of inevitable end?

From these apprehensions, we can consider that the Anthropocene affects not only human centrality, not only the environmental dimension. The Anthropocene is inserted in the broad sociopolitical and socioeconomic dimensions, starring several other crises, especially in attention to micro-contexts. It is this complex that we call here situated crises, those that are inserted in specific communities, such as those involving holders of ancestral artisanal knowledges and practices, for example. When we embrace the proposal of situated knowledges, we understand that they are also situated in their contexts of crisis.

With this disposition and attentive to Scranton's (2015) inquiries, we suggest other problematics: How is the Anthropocene lived and experienced in the situated atmosphere of diverse communities? Is there perception regarding situated crises? Beyond climate events, what other dimensions in crisis occur among holders of situated knowledges and their territories? What crises promote the demise of situated knowledges?

Our position of being on the verge of inevitable end causes us extreme discomfort for projecting a solution reaction as traditionalist designers. That is, when we find ourselves at a point of no return, should we accept the end or engage in the collaborative creation of opportunities? This theoretical articulation that we propose in this writing involves the different perspectives of situated crises, displacing human centrality, attentive to knowledges situated in ancestralities, toward the collaborative creation of opportunities for the main crisis we present: the suppression of artisanal knowledges that correspond to material and immaterial culture and the identity of a people.

In the current context in which society is immersed, we observe that we can no longer escape the crisis scenario. These crises are potential for the unfolding of many other crises and situations; therefore, in all this articulation there is a common point: the centrality of the human as agent (Latour et al., 2018). For this reason, we do not consider it excessive to position human agencies at the center of crises.

We understand that, as designers, we have contributed significantly to the expansion of crises, whether through the unsustainable ways in which we design as historical inheritance, or through thinking stalled in the incessant search for radical innovation in multiple areas. We need to reflect and, above all, act so that design provides other paths, other ways of engaging with crises. A possible path is to face the discomfort of living in inevitable crises, detaching solutionist and hegemonic action from our practices, positioning ourselves critically in relation to our bases of action.

The modern social model positioned design and its practice hierarchically, assuming an elitist positioning characterized by its configurations, among them the established role of designing

from the modern perspective, instituting itself as superior (Argan, 1993). These factors caused consequences in organized groups and/or communities that conduct their production artisanally. In these communities, the reflexes of the modern/contemporary conjuncture, promoted by the thought of progress and changes in the economic context, may be causing increasingly marked implications in the atmosphere of situated knowledges.

These consequences generate unfavorable economic context, the removal of autonomy of social actors living in the territory, degradation of resources, global changes in environmental dynamics that affect the local dimension, and deficiency in engagement and development of opportunities for the continuation of their material and immaterial cultures. From the perspective of hegemonic epistemology, design promoted the burial of situated knowledges, such as ancestral, native, and medicinal knowledges of indigenous peoples.

What is understood here is the need to assume situated knowledges as knowledge as important as specialized ones. Ancestral knowledges are the basis for the knowledges we have in the present, a fact observed in the evolutions of knowledge in multiple areas. We, as designers willing to rehabilitate knowledges in collaboration, set out towards this kinesis. The apprehension is clear that the consequence of predatory practices over the decades incites the opening of space for engaging actions, through collaboration and involvement in opportunities that can be built in participation in the revelation of future paths regarding situated knowledges and practices.

We are aware that design has established itself as one of the promoters of dissociations between knowledges and the establishment of crises, through the race for incessant innovations in the industrial and productive system (Argan, 1993). But design today presents itself as a path of opportunities to escape traps, starting with crises (Portela, 2019).

Recalling reflections on the Anthropocene, authors such as Mendes (2022) and Danowski and Castro (2017) disseminate the idea of this new geological era based on climate/environmental issues. However, it is still not consensus in the literature that we are, in fact, living in a new geological era. These and other authors set out to reflect on the context, humanity, and crises, raising understanding and theory about this myriads of events.

Deepening follows considering the Anthropocene from the perspective of the crisis of disappearance of intellectualities and multiple practices, therefore, the extinction not only of know-how, but of the capacity of living culture to continue its trajectory without definitively losing origin, besides aiming at new movements from the valorization and resistance of movements already carried out. The Anthropocene reflects an era in which there will be ends in different ways; what persists in this study is how one lives with these ends and whether there are strategies for regeneration of what is eminently about to be extinct.

Design reflects on its own actions in this atmosphere of probable ends, reaching approaches that rethink its acts. This is the case of participatory design and the theme of regeneration. These approaches orient design actions toward openness to other knowledges, such as situated ones, promotion of collaboration of different social actors in processes, mediation, exchanges, and collective strategies, opening opportunities to collaboratively think about actions that consider the importance of knowledges and practices and aspects of socio-environmental relationship and the complexity of systems oriented toward regeneration beyond the ecological perspective.

3. CONCLUSION: DESIGN, CRISIS, AND THE PATHS OF REGENERATION

The analysis undertaken demonstrates that extinction, far from being a phenomenon restricted to the disappearance of biological species, reveals itself as a complex and multidimensional process that affects local knowledges, practices, and cultures in the face of capitalist and technological acceleration. As demonstrated, modern design, historically aligned with industrial logic and profit maximization, was one of the vectors of this crisis, dissociating artisanal practices from their original contexts and accelerating the erosion of ancestral knowledges. However, this same discipline can reposition itself as a mediator of resistance and regeneration when adopting participatory, situated, and collaborative approaches.

In the context of the Anthropocene, marked by environmental, sociopolitical, and cultural crises, design is challenged to transcend its traditional role. As Escobar (2016) points out, it must abandon the technocratic and centralizing posture to embrace methodologies that value local knowledges, promote community autonomy, and foster processes of cultural regeneration. This implies recognizing the importance of artisanal knowledges not as remnants of the past, but as foundations for possible futures, where production is not only about objects, but about sustainable relationships and shared meanings.

The extinction crisis, therefore, is not only inevitable destiny, but a call to action. If, on one hand, design contributed to homogenization and erasure of cultures, on the other, it can [and must] be reconnected to regenerative practices, where collaboration, active listening, and respect for local contexts guide projects that aim not only at survival, but at the flourishing of pluralistic ways of life. Regeneration, in this sense, is not a romantic return to the past, but a critical reinvention, capable of articulating tradition and innovation in favor of more just and diverse futures.

The operationalization of this perspective implies the development of research in traditional communities, where the designer acts not as an external specialist, but as a facilitator of participatory processes aimed at, for example, the documentation of techniques, co-creation of strategies for regeneration, and democratic mediations that incorporate ancestral knowledges and the strengthening of local cooperation networks. This article, by establishing the theoretical bases for broader empirical investigation, part of a doctoral thesis on craftsmanship, extinction, and regeneration, seeks to understand how these dynamics manifest in specific artisanal practices, opening the way for future research that investigates in loco the possibilities and limits of participatory design as a strategy of cultural resistance.

Thus, it is concluded that although the extinction of certain practices seems inexorable in the face of global forces, participatory design emerges as a possible path to mitigate its effects, transforming from agent of crisis into agent of transformation. Its regenerative potential lies precisely in the ability to mediate dialogues between knowledges, strengthen communities, and collectively reimagine modes of existence that resist the predatory logic of late capitalism. The challenge now is to put this perspective into practice, ensuring that situated knowledges not only survive, but inspire new ways of inhabiting the world, for there will always be worlds to come.

ACKNOWLEDGMENTS

This work was carried out with the support of the Coordination for the Improvement of Higher Education Personnel - Brazil (CAPES) - Funding Code 001. This article is derived from doctoral research developed in the Graduate Program in Design at the University of Vale do Rio dos Sinos (Unisinos).

ENDNOTES

The article was selected for the special edition X SDS Worlds to Come. The artificial intelligence tool DeepSeek was used exclusively for spelling and grammar correction of the text.

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