The Anthropophagic Studio:  
Towards a Critical Pedagogy for Interaction Design  

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The Anthropophagic Studio: Towards a Critical Pedagogy for Interaction Design

Abstract:
The design studio is the standard approach for interaction design education in the Global North. Nevertheless, in the Global South, this approach is not directly applicable due to authoritarian educational systems founded on colonialist ideologies. This research reports on an attempt to appropriate the design studio and fundamental interaction design concepts in Brazil. Following the anthropophagy tradition of hybridization, the foreign concepts were not rejected but devoured and digested together with Global South concepts, such as radical alterity, mediation, and oppression to form what we call the anthropophagic studio. The process gradually revealed to students and researchers the role of interaction design in reproducing other historical oppressions beyond colonialism. This finding points to the need for a critical pedagogy that can aptly tackle technology-mediated oppression.

Keywords: design studio, interaction design education, anthropophagy, critical pedagogy, cultural studies.

Word Counter: 9093

1. Introduction

Design studios are often considered the standard approach for interaction design education (Thomassen and Ozcan 2010, Culén, Mainsah and Finken 2014). In this approach, students learn to have reflexive conversations with digital materials and apply them to specific situations, working autonomously and at their own pace (Löwgren and Stolterman 2004, Schön 1983). To provide for such experience, design studios typically offer non-restricted access to permanent workspaces, walls for making artful surfaces (Vyas and Nijholt 2012), prototyping toolkits (Aprile and Van der Helm 2011), and instructors available for coaching (Adams et al. 2016). The design studio is a spacey and expensive pedagogy but it enables the development of experimental design projects which have the potential to redefine the foundations of a particular design discipline or, even, to create new disciplines (Redström 2017).

The Manifesto for a Digital Bauhaus (Ehn 1998), for example, announced the opening of a range of design studios that, along the years, contributed to defining the interaction design discipline (Binder et al. 2008). Nevertheless, after years of teaching and researching in these studios and others that followed the same approach, the collective designer A.Telier (2011, p.184) came to the conclusion that the design studio isolated students from the larger social context where they live in, nurturing an elitist attitude towards the use of digital media1.

1 A.Telier is a pseudonym shared by Thomas Binder, Giorgio De Michelis, Pelle Ehn, Giulio Jacucci, Per Linde, and Ina Wagner. Their joint work can be traced back to the collective systems
These critical reflections over the Digital Bauhaus led A. Telier and others to conduct democratic design experiments outside the design studio (Telier et al. 2011), such as designing deliberative things into the public or growing social innovation living labs among various organizations (Ehn et al. 2014). These experiments made A. Telier wonder: “where will the design studio of the future be situated, who will participate, and what kind of design games will they play?” (2011, 186). As a partial answer, the collective designer suggested that “the design studio of the future may become a highly saturated place where the many problems of the world are consumed and digested” (Telier et al. 2011, 84).

This research adds another dimension to rethink the interaction design studio: the abyssal line between the conditions for education in the Global North and the Global South. Based on this distinction, we respond to A. Telier’s question with another question: how could a design studio located in the Global North consume and digest the many problems of the world without escaping the colonialism that created most of these problems in the first place? This research explores the possibility of the design studio of the future to be located and localized in the Global South, based on the ideas, concepts, theories, and practices that are already developing there.

According to the epistemologies of the South movement (Santos 2018), the first step in localizing the design studio would be recognizing the abyssal line between global knowledge centers and local knowledge peripheries, often ignored or denied by Global North academics who benefit from implicit claims of universality. Everything that is theorized in the Global North is supposed to be valid for other parts of the world, including the design studio pedagogy and the solutions to the many problems that stem from there, as if the world was or should be homogeneous.

The epistemologies of the South propose replacing claims of universality for pluriversality, which are valid for specific worlds and realities (Escobar 2018), either constructed through the hybridization of scientific and traditional Global South knowledge (Freire 1970, Freire 1973, Vieira Pinto 1960), as well through the hybridization of Global South and Global North knowledge (Santos 2018). Winschiers-Theophilus and Bidwell design movement initiated in Scandinavia in the 1970s, which also uses the term collective designer to identify such collective authorship (Ehn and Badham 2002). This movement lost steam in Scandinavia in the last decades, possibly due to the cultural shift towards individualism, and the increasing commercial orientation of the interaction design studios’ funding partners (Malmborg 2004). This shift may explain the elitist attitude to digital media that A. Telier found among their students.

We use the contemporary division between Global North and Global South (Santos 2018, Escobar 2018) to promote the dialogue and aggregate earlier concepts such as eurocentrism (Andrade 1928), underdevelopment (Vieira Pinto 1960, Vieira Pinto 2005), and oppressed reality (Freire 1970, Freire 2016) that were used by Brazilian authors to describe the colonization practices that are still in place even after the political independence. The permanence of a colonized mindset in Global South is sometimes captured by the term coloniality (Quijano 2007), which is used, for example, to denounce the reproduction of a modern/colonial view of the world through design (Tlostanova 2017). However, we prefer to follow Boaventura de Sousa Santos (2018) in keeping the term colonization to emphasize the oppressive relation which asserts economic, political, or technological dependences between metropolis and colonies. This also helps us to critically approach new forms of the same relation, such as digital colonialism (Kwet 2019) and data colonialism (Couldry and Mejias 2018).
(2013), for example, confronted Human-Computer Interaction (HCI) knowledge with African indigenous knowledge to develop an Afro-Centric interaction design which is dear to issues such as interconnectedness, spirituality, and oral communication.

This paper presents the anthropophagic studio, a research/education program that attempts to hybridize the design studio based on the Brazilian tradition of anthropophagy (Andrade 1928), which began with indigenous people fighting and eating Portuguese colonizers in the XVIth century to incorporate their strengths into the tribe. This cultural practice underwent a long process of development, culminating in a public policy for digital culture in the XXIth century (de Luca Pretto and Bailey 2011). In line with this policy, the authors developed an undergraduate-level interaction design course based on cultural specifics to counter the prevailing hegemonic and colonial traditions that stem from the Global North. In this localization process, the concept of oppression came to the foreground, laying a path to the development of critical pedagogies in interaction design.

In the next section, the history of interaction design education in Brazil is summarized, followed by the history of anthropophagy in Brazilian art, design, and education. The remaining parts of the paper introduce the anthropophagy hybridization model and apply it to describe how the anthropophagic studio came to being. The last two sections avail the experience as a step towards a critical pedagogy for interaction design education.

2. Interaction design education in Brazil

The history of tertiary design education in Brazil is marked by the foundation of ESDI in 1963, a design school based on the design studio pedagogy. The curriculum was imported from the Hochschule für Gestaltung Ulm and quickly became influential in Brazil in the years that passed (R. Couto 2008). In 1964, a military dictatorship established itself, and education became more centralized and controlled. The curriculum prescribed by the government required design education to become more scientific and technicist, leaving little room for the art-friendly design studio. This orientation was followed even after the dictatorship was over in 1985. As of today, the design studio is still restricted to specific courses called by generic names such as "Project II" or "Integrated Project IV", which account for less than a third of the program course hours. The isolation and functionalization of the design project hamper the interdisciplinary work which is supposed to happen there. The experience is typically restricted to the application of design methods imposed by the teacher, with little methodological reflection.

In this situation, the design curricula were too rigid to incorporate new topics and practices, such as interaction design. This is possibly why design schools did not pioneer interaction design education in Brazil, a task which was accomplished by researchers in the field of computing (Rodrigues 2019, Guimarães and Prates 2018). Computing programs started offering undergraduate and graduate courses on Human-Computer Interaction (HCI) since the 1990s. The majority of these courses did not hold design studios since HCI was and still is largely considered a theoretical study in computing.

Since the 2000s, though, design bachelors began offering undergraduate and post-graduate courses related to interaction design, training students for making digital
graphics and interactive prototypes (Rodrigues 2019). Most of them did not address the issue of mediated human-human interaction, a top priority in a country that considers itself a heavy user of social media. This is no surprise, given that the main textbook prescribed by these courses (Preece, Rogers, and Sharp 2005) does not address this issue in depth. This textbook is one of the few that has been translated to Portuguese and, due to that, remains a steady representative of what interaction design could be, both in computing and design fields. The criticism on this textbook (Löwgren 2002), and the corollary distinction between HCI and Interaction Design that emphasizes the design studio pedagogy (Löwgren 2001), does not get the same attention — and translation. Controversy is usually not imported by the colonized markets for textbooks, conferences, and consulting work.

The isolated courses in interaction design end up transmitting content generated in the Global North that has little relevance for the student reality. These courses usually present a "right" and "wrong" application of principles, techniques, and methods instead of presenting interaction design as a field with controversies, conceptual divergence, and methodological pluralism that require the practitioner to develop a standpoint (Rodrigues 2019). Given this state of affairs, some practitioners prefer to study and/or migrate to the Global North. Indeed, colonialism makes aspiring interaction designers — like their developing countries — believe they depend on this kind of knowledge transfer to develop themselves (Vieira Pinto 2005, Martín-Barbero 1993, Santos 2018).

This problem is not exclusive to interaction design education. Paulo Freire, a prominent Brazilian educator who was forced into exile by the military dictatorship of 1964, wrote extensively about the correlations between authoritarianism, colonialism, and education in the Global South. In his *Pedagogy of the Oppressed* (1970), Freire identifies and denounces *banking education*, an oppression that deals with knowledge as if it was some kind of universal accepted value (like money) that could be deposited in student accounts, just in case they need it in the future. The deposits are made in the most convenient way for the teacher, with no regard for the particularities and previous knowledge each student has. Its universality, neutrality, and timelessness lend authoritative knowledge a (supposedly) superior position in relation to other forms of knowledge.

Banking education has its historical roots in early colonialism when Europeans educated indigenous people in their colonies as if they had no education of their own. Freire named this practice *cultural invasion*, the attempt to introject oppressor's value in the oppressed (Freire 1970, Freire 1973). In this case, the cultural invaders tried to make indigenous people believe in the natural and spiritual origins of authority that Europeans embodied or inherited. In this way, authoritarianism entered Latin-America through early education in the colonies, but also through its governance. The metropolis kept colonies under tight command and when they declared political independence, most of them resourced to a local version of authoritarianism.

Despite the democratic efforts, the political trajectory of most colonies is still punctuated by moments of increased authoritarianism and extreme turns (Schwarcz 2019), such as the *coup d'Etat*. The new authoritarian policies are often supported by
Global North nations and implemented through their technology platforms (Kwet 2019), which are eager to capture the value of the data produced by the Global South (Couldry and Mejias 2018). The examples are plenty: work flexibilization supported and extended by Uber (Firmino et al. 2019), state surveillance naturalized by Google Maps (Kwet 2019), and lawfare articulated in Telegram and WhatsApp (Wyllys 2020). In this state of affairs, it is very difficult to safeguard democratic values in education and design.

As can be seen from this short historical summary, the design studio pedagogy could not be fully applied in Brazil due to the authoritarian educational system, founded on colonialist ideologies. Interaction design education in Brazil has, with rare exceptions, reproduced banking education, intensified by the technological forms of colonialism (Rodrigues 2019). To fully implement the design studio, authoritarianism and colonialism must be first criticized and overcome. According to the epistemologies of the South, the hybridization of foreign concepts with local knowledge is one way of doing this (Santos 2018, Escobar 2018). For example, Baltazar and colleagues (2011) developed an architecture studio based on the local concept of anthropophagy. Their goal was “not only making students critically digest what comes from the outside [the Global North] but mainly making them capable of creating open spaces for user engagement, stimulating them to interact with spaces that broaden experiences” (Baltazar et al. 2011, 4).

In our personal experience as interaction design researchers and teachers working in Brazil, we sought ways to counter banking education and other forms of oppression. In 2015, we created an interaction design course within a Digital Design bachelor, which is divided into regular and studio courses. The interaction design course was supposed to be a regular course, but we tried to develop it as a critical appropriation of the design studio. We wanted to let students interact with people, situations, and cultures other than what the bachelor and initial professional experiences may have offered them. However, to counter oppression, this had to be done without imposition, transmission, or any authoritarian means.

As expected, we faced many challenges. Since the course was based on a weekly 4 hours session, we could not book a permanent space for the studio. Regular classrooms were transformed and cleaned up every session to work as a temporary studio. We kept hanging sketches and pictures on the walls to make artful surfaces (Vyas and Nijholt 2012) despite these eventually being taken off by those who used the same classroom for other purposes. With no funding for purchasing prototyping toolkits (Aprile and Van der Helm 2011) or any kind of digital material, we improvised with self-funded analog materials such as paper, pen, small whiteboards, Lego pieces, clay, and others.

Teaching interaction design without digital materials seems to be inadequate, especially when trying to implement an interaction design studio. Nevertheless, this choice enabled us to focus on human interactions, which was supported by the concept of technology we took from Vieira Pinto (2005). This concept of technology draws no essential distinction between technology and humanity. Therefore, it is not possible to establish a general hierarchy between analog and digital technologies, as if one was always more advanced than the other. The social value of technologies cannot be weighted on their own; their value depends on their use by specific human collectives.
Analog or digital, the appropriate technology in this concept is the one that helps human collectives to develop a higher degree of handiness (Vieira Pinto 1960).

In our case, while teaching other courses from the same bachelor held in computer laboratories, we realized that the centrality of desktop computers in these spaces distracted students from where the action is (Dourish 2001). These laboratories made students confident that they can design everything “inside the computer” in a detached way as if that was all about interaction design. In a classroom, in contrast, we could move around chairs and tables, create some quick and dirty prototypes, and highlight the role of technology in extending the human body and mediating interactions between real, concrete, fleshy human bodies (Vassão 2008). Modifying the classroom space made us realize, together with the students, the existential project (a.k.a. life projects) implied by interaction design: the ontological production of human collectives through mediated interaction (Gonzatto 2018, Escobar 2018, Vieira Pinto 1960).

By teaching in this Digital Design program as well as the interaction design course, we learned that the design studio described by the Global North literature was not feasible in our context. By reading the reports on HCI and interaction design education in similar places (Joshi 2004, Moalosi et al. 2007, Yildiz 2008, Wesson 2009, Abdelnour-Nocera et al. 2015, Alab dulqader et al. 2017, Lazem and Dray 2018, Lotz and Sharp 2020), we also speculate that it is not feasible in the entire Global South. The design studio needs appropriation, yet this is not just a matter of reducing its scope or lowering the technology requirements since this would still keep the cultural invasion practice in place. In our view, the appropriation of the interaction design studio should combine the available technology with the strongest feature of a given culture. The next section describes the concept of anthropophagy we used for that.

3. Anthropophagy in Brazilian art, design, and education

In previous works (Van Amstel and Gonzatto 2016, Van Amstel et al. 2014, Van Amstel et al. 2011), we described how our interaction design practice developed in tune with the Brazilian digital culture movement, which was ignited by a call from Minister of Culture Gilberto Gil in 2003 and partially disarticulated in 2016 by the impeachment of President Dilma Rousseff. The movement wanted to avoid technological dependence while also fostering an original cultural scene in Brazil (de Luca Pretto and Bailey 2011). Inspired by this motivation, we started a discussion in Brazil about design and freedom (Van Amstel and Gonzatto 2016, Faber-Ludens 2012), with the provocative motto "designing locally, cannibalizing globally". This discussion was picked up by the controversial book Design sem Designer [Design Without Designers] (Sant'Anna 2013) and the Fabless Manifesto (2017), which discussed "how to fabricate almost anything with almost nothing".

The main concept behind digital culture and this discussion about design — anthropophagy — literally, means eating humans. It was firstly developed by the founders of the Brazilian modernism movement (1920-1930) who wanted to build an authentic Brazilian art movement inspired but distinct from the European avant-garde (Korfmann and Nogueira 2004). Rather than the biological process of eating the same species explored by dadaism (Nunes 1979), anthropophagy emphasized the cultural and
collective aspect of eating humans, such as the indigenous ritual of eating war enemies to absorb their strength into the tribe (Staden 2008). The enemies were eaten in a respectful rite that every member of the tribe participated, like in a major celebration. As a collective body, the tribe was responsible for the act and deserved revenge from the enemy's relatives, which was expected in the future (Viveiros de Castro 2012).

The concept took steam when Oswald de Andrade used it to redefine the foundation of Brazil in Manifesto Antropófago (1928). Instead of the year 1500, when the first Portuguese arrived at the coast, Andrade proposed to consider 1556 as the foundational year of the country. In that year, indigenous people captured and literally ate the Portuguese bishop Pero Fernandes Sardinha, opening the avenue for the hybridity that now characterizes the national identity (Netto 2014, Jáuregui 2012). Manifesto Antropófago also stated that Pindorama, as some of the indigenous people called their land before the Portuguese invasion, already had everything that futurism, dadaism, surrealism, and cubism were trying to build in Europe, with the advantage of not leaning towards fascism. Instead of excluding the Other like fascism, anthropophagy absorbed the Other into the Self, in a radical form of alterity (Viveiros de Castro 2012, Szaniecki 2019).

This reference to indigenous practices is not meant to recover old traditions or to put the good savage of Rousseau at the forefront of a utopian society. Anthropophagy remembered the episodes of American history to build an alternative future in which technified barbarians (Andrade 1928) devoured European ideas through the creative absorption of new media — at that time, the telegraph, the radio, the cinema, and the television. The underlying goal was to counter the cultural hegemony of Europe in the Americas (M. Couto 2009). From this perspective, anthropophagy could be considered a forerunner of later decolonial and post-colonial movements that rose in other parts of the world (Garcia 2020, Souza 2015, Islam 2012).

Anthropophagy is often used as an example of what Latin American Cultural Studies theorized as the distinctive and conflictual nature of colonized cultures: hybridity (Canclini 1995) and mestizaje (Martín-Barbero 1993). "Like Martín-Barbero or García Canclini today, Andrade conceived Latin American modernity as a heterogeneous ensemble of the primitive and the modern" (Jáuregui 2012). There are differences between these two concepts, yet these two authors may agree that Latin American cultures are characterized by a constant process of reworking values, signs, and myths to counter the cultural invasion that keeps coming from abroad. This explains the continuous interest in anthropophagy from subsequent art movements.

3 Oswald de Andrade (1890-1954) was a key figure in the Brazilian modernism movement. He studied and traveled through Europe between 1912 and 1922. When returning to Brazil, he sought ways to modernize the cultural scene. In this way, he became an accomplished bohemian, journalist, writer, poet, and playwright. Nunes (1979) describes the relevance of anthropophagy for his biography.
After the defeat of fascism and nazism in the war, anthropophagy became a major influence in Brazilian culture, admired and celebrated by art movements such as bossa nova, cinema novo, tropicalia, mangue beat, and digital culture. The first movement to relate anthropophagy and design was tropicalia, which started in the 1960s. Rogério Duarte, a visual artist who got involved with organizing *happenings* and trade union events, realized the potential of industrial design to develop existential projects: "the aesthetic issue of industrial design is, ultimately, a political issue" (Duarte 1965). From this stance, he designed book covers, magazines, newspapers, album covers, and film posters which digested US psychedelia together with traditional forms of Brazilian art, celebrating multiple readings and interpretations. His poster for Glauber Rocha's Black God, White Devil (Figure 1) is praised for its courage, creative hybridity, theoretical advancement, and semiotic cleverness. The poster design explores the ambiguity of equating the divine with the dreadful, just like the movie does. Design historians and critics recognize Rogério Duarte's work as a major stepstone in the national graphic design identity (Carvalho 2008).

![Image of Rogério Duarte's poster for Black God, White Devil](image)

**Figure 1:** Iconic example of anthropophagy in Brazilian graphic design: the movie poster for Black God, White Devil (1964) by Rogério Duarte (1964).

Black God, White Devil (1964) was launched two months after the implementation of a right-wing military dictatorship. The poster makes a clear statement against the regime with a combination of visual patterns from soviet constructivism and *cordel* literature. The juxtaposed images of Christian cross, man, and sun synthesize the critical ambiguity of the movie plot. Rogério Duarte envisioned Brazilian industrial design contributing to the political challenge of modernizing the country without falling to the modern pretense neutrality: "We are confident of our absorptive power, anthropophagy, which is capable of transforming everything that influences us" (Duarte 1965). Sadly, this existential project was interrupted by the military dictatorship in 1968, when Rogério Duarte was unlawfully sent to prison and tortured. After that, he faced serious psychological burden and ostracism.
Anthropophagy hybridity is also present in critical pedagogies such as Pedagogy of the Oppressed (Barcelos and da Silva 2008, Barcelos 2013, Freire 1970) and its derived Theatre of the Oppressed (Boal 2000). These critical pedagogies stimulated the learner to recognize him or herself as oppressed in one social relationship and as an oppressor in another social relationship, effectively considering the presence of the Other in both versions of the Self. Anthropophagy in this perspective is the opposite of cultural invasion; it is a form of cultural synthesis: "a mode of action for confronting culture itself, as the preserver of the very structures by which it was formed" (Freire 1970, 180). Cultural synthesis does not deny or reject cultural invasion, rather, it recognizes the possibility of a dialectical interplay between both. As Boal explains,

Imperialist and colonialist cultures devour, digest, and return cultural elements from colonized countries — we are forced to digest, metamorphosed, cultural forms that were once ours. [...] Creating our own culture, without bondage to the cultures that were imposed on us, is a political act and not just aesthetic; aesthetic act, not just political! (Boal 2006, 36)

In summary, anthropophagy in Brazilian art, design, and education means reflective devouring of the Other, which implies much more engagement with the Other than copying or imitation. Devouring does not mean "yours, devoured, become mine", but "mine, yours, devoured, become Other" (Azevedo 2018). The anthropophagous has an active role and is willing to transform him or herself. The new Self is never finished since the technified barbarian is always looking for an update. Therefore, it is not enough to admire the hybrids at a specific point in time to understand anthropophagy; it is necessary to follow the hybridization process throughout history (Canclini 1995). The historical perspective is also essential to admire the existential project (Vieira Pinto 1960, Escobar 2018) that emerges from anthropophagy: the tribe, the class, the art movement, or the nation.

Based on this historical account, we can generalize the hybridization process of anthropophagy in five distinct moments of an erratic cycle (Figure 2). This process does not follow a linear progression since every participant is free to experience different moments of the ritual at the same time, including joining or disjoining another participant.

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5 Boaventura de Sousa Santos (Santos 2018) has a similar concept called intercultural translation, which applies not only to North-South exchanges like in anthropophagy, but also to South-South knowledge, like in the World Social Forum and similar initiatives that connects the Global South.

6 This model is our interpretation of anthropophagy as practiced by Brazilian modernism artists. We could not find any work that clearly describes this process. The closest we could find is an anthropophagic method for critical management (Wood Jr and Caldas 1998, Pinto 2014), however, we believe that hybridization processes are not as straightforward as prescribed by this method. According to Canclini (1995), these are characterized by ins and outs, back and forth movement, and detours.
Admiration is the moment when the Other is distinguished from the Self and recognized for having some particular quality the Self does not yet have, including his or her technology. "To a-d-mire implies that man stands over against his not-I in order to understand it" (Freire 1972). Devouring is when the Self voraciously interacts with the Other, such as having a dialogue or an argument over that particular quality. "Devouring carries with it the immanence of danger" (Andrade 1970, 159). Everything can happen at this moment, especially if the Other is still alive. Digestion happens when the differences between the Self and the Other sparks acid self-criticism and other-criticism. The subjects (Self and Other) are decomposed into the elements that provide the admired quality. The parts are divided because "critical analysis of a significant existential dimension makes possible a new, critical attitude towards the limit-situations" (Freire 1970, 104). Absorption follows when the digested Other is related to the history of the Self, with qualities being incorporated or transformed according to the existential project. Andrade humorously put in this way:

"The meat of the animal has the qualities of the animal, those who eat the jaguar become angry, those who eat sloth become lazy, those who eat alligator become treacherous, those who eat deer become lost, only with the animal man it is the contrary, whoever eats a bad guy becomes good" (Andrade 1929).

Celebration is the moment when the Self displays publicly the new qualities absorbed from the digested Other. Ontologically speaking, a new collective existence is
realized (Vieira Pinto 1960, Escobar 2018). This fulfills the meaning of the ritual: the enemy's body being incorporated by the collective body.

In this research/education program, this hybridization model was formulated after the education practice that will be described in the next section, as a by-product of our sense-making. The model is introduced before the practice description since anthropophagy was already one of its premises, even if not as well articulated as it is here. Another reason for framing the practice in this way is to assist the reader in understanding a process that otherwise may seem rather barbaric, as the first European survivor described the Brazilian indigenous anthropophagy (Staden 2008).

4. The anthropophagic studio

The hybridization process unfolded through an interaction design course with 72 hours in total, which is part of the third year of a Digital Design bachelor at Pontifical Catholic University of Paraná (PUCPR), Curitiba, Brazil. This report is based on our role as teachers of this course from 2015 and 2018. In this period, we had seven cohorts, with an average of 30 students each. Every time the course was offered, we changed its syllabus to increase the appropriation of the design studio, which was our initial reference for interaction design education. We followed the researcher-teacher approach (Moreira and Caleffe 2006, Freire 1970), which uses the classroom as a laboratory, as a means to overcome the institutional lack of resources for doing research. With this approach, researcher-teachers can use classroom activities as learning experiments, collecting data from student-student and student-teacher interactions. In our case, the experiments consisted of bodily practices (Lazzarotti Filho et al. 2010) introduced before or after oral explanations as a material for dialogue (Freire 1970). After every class and cohort, we discussed the experiment results and planned the next based on students' and our own research questions.

The following sections describe the hybridization cycles we went through in our mixed education and research activity. According to the model presented above, these cycles are supposed to be erratic, i.e. go back and forth, jump, and stagnate for a while. Hence, a moment could start in one cohort, stop in the next, and be picked up by the last. We selected the cycles that lasted longer across the life of the interaction design course to describe here since they represent the overall investigation thread. The order of this description also represents our progressive understanding of the research matter.

4.1 Foundational cycle

Since the first cohort, the course's goal was to hybridize interaction design concepts we admired from the Global North. While devouring these concepts, we sought local concepts that could mend the disparity between northern realities and southern realities. We created bodily practices that could work as hybridization experiments in which students could participate as Self and Other in any of the five moments of anthropophagy (see Figure 2). These experiments were carefully registered in photos and videos. Soon after these were over, we digested the concepts through open discussions with students, and also after the class among ourselves, eventually recording these in audio. When looking at the registered data after a while, we evaluated what was absorbed and what
was ignored by the students. The **celebration** occurred when students publicly presented the interactions they have just designed. In these presentations, students often strived to experience collective laughter. During or soon after the **celebration**, we remembered or created new concepts to **admire** and go over the cycle once again.

The first concepts we **admired** came from the thoughtful interaction design perspective (Löwgren and Stolterman 2004), which is based on the design studio’s characteristic reflective practice (Schön 1983). In line with this perspective, we wanted our students to have conversations with digital materials, appreciate use qualities and perform design critiques. As we tried that, we realized the need to turn reflective practice into a hybridization practice (Canclini 1995), engaging students with the **digestion** of foreign concepts. As a result, we gradually replaced design critique on use qualities (Löwgren and Stolterman 2004) for social critique on taste regimes (Bourdieu 2013). This led us to expand the notion of interaction project (Löwgren 2001) to an existential project (Escobar 2018, Vieira Pinto 1960). By the end, we wanted our students to become technified barbarians: critically conscious of the possibilities offered by foreign interaction design knowledge and deftly on hybridizing it with local knowledge to contribute to the existential projects in their locality.

The hybridization of the conceptual underpinnings of the design studio went along with the hybridization of foundational interaction design concepts, which were selected from introductory books on interaction design. Table 1 offers a summary of the concepts we **admired** and **devoured** and the alternatives we **digested** and **absorbed** in the anthropophagic studio. The next sections **celebrate** the hybrid practice that emerged from that.

**Table 1: Foundational interaction design concepts typically developed in design studios and the alternatives developed in the anthropophagic studio.**

<table>
<thead>
<tr>
<th>Interaction design studio</th>
<th>Anthropophagic studio</th>
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<tbody>
<tr>
<td>Design critique (Schön 1983)</td>
<td>Social critique (Bourdieu 2013)</td>
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<tr>
<td>Interaction project (Löwgren 2001)</td>
<td>Existential project (Escobar 2018, Vieira Pinto 1960)</td>
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<tr>
<td>Thoughtful way (Löwgren and Stolterman 2004)</td>
<td>Critical consciousness (Freire 1970)</td>
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<td>Digital material (Löwgren and Stolterman 2004)</td>
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<tr>
<td>Designing with Intent (Lockton 2013)</td>
<td>Counter-project (Lefebvre 1991)</td>
</tr>
<tr>
<td>Ready-to-hand (Winograd and Flores 1987)</td>
<td>Handiness (Vieira Pinto 1960)</td>
</tr>
<tr>
<td>User needs (Shneiderman 1987)</td>
<td>Privileges (Martins 2014)</td>
</tr>
<tr>
<td>Mental model (Norman 2002)</td>
<td>Conscious body (Freire 1998)</td>
</tr>
<tr>
<td>Sketching user experiences (Buxton 2010)</td>
<td>Acting (Boal 2000)</td>
</tr>
</tbody>
</table>
4.2 Interaction materiality cycle

The design studio pedagogy typically begins by introducing design materials and stimulating students to have meaningful conversations with them (Schön 1983). We admired that interaction design takes digital technology as its specific material (Löwgren and Stolterman 2004). Since we did not have plenty of digital material at hand and we wanted to focus on human interactions mediated by appropriate technology, we had to devour the concept of digital material together with interface, interaction, and experience. Inspired by Latin American cultural studies (Van Amstel 2008, Martín-Barbero 1993), we began the course by proposing a shift from interface (the media) to interaction (the mediation).

Interaction as mediation is not a design material that can be bend at will by designers since it originates from people that also have will and agency to reshape the digital material. This could be conceptualized as the material talking back to the designer in the reflexive conversation (Schön 1983), provided that we assume people are subsumed by digital technology. Since we wanted to consider people as interaction materializers and not as interaction material (again, as mediation and not as media), we absorbed resistance, appropriation, non-use, and other relations that emphasize human agency in the concept of interaction materiality (Gonzatto 2018). In this way, we could use analog technology to deal with digital technology, while preserving (to a certain extent) the same interaction materiality.

![Figure 3. Students simulating Facebook's algorithm with The Conceal and Show Game.](image)

We tried different bodily practices for students to realize the materiality of interaction: a) conditional drawing with paper and pencil (Maurer et al. 2013); b) simulating bird flocks with human bodies and a simplified BOID algorithm (Reynolds 1987); and c) enacting Facebook social network as a game, which worked best for this purpose. The game uses pen, paper notes, stickers, and yarn to simulate the impact of Facebook's algorithm in the distribution of messages across users' timeline (Figure 3). The winner is the author of the messages with the highest number of likes and dislikes stickers. After declaring the winner and digesting the messages, the students absorbed that the most popular was also the most divisive arguments (with an almost equal number of likes and
dislikes). The ironic celebration recognized those who played best the Facebook game as well as those rare students who refused to play the real game. Not having an account in this social network in Brazil is an act of resistance against digital/data colonization (Kwet 2019, Couldry and Mejias 2018), however, it has a serious impact in everyday life since, at the time this research was done, so much of Brazilian everyday communication (and politics) went through that network.

After realizing concretely the characteristics of interaction materiality, we posed a crucial question to students: is it possible to design an interaction? If so, how? Interaction design scholars and practitioners typically refer to the concept of affordance to answer that. Since we wanted to emphasize the role of the body in interaction materiality, we devoured Norman’s concept (2002) together with Gibson’s original formulation (1986) and Martín-Barbero’s broader notion of mediation (1993). We took a chair from the classroom and demonstrated the different relationships a chair can have to different human bodies and, due to that, the kind of actions the chair-body relationship can support. We did not limit our demonstration to the action of sitting since we wanted to highlight the human body agency over its medium. We digested how the situated relationship of a chair and a human body can create so many actions that the chair was not designed for, like keeping the curtains away from those who sit next to a window.

The affordance demonstration lets students admire the mediations that are possible in a given situation. The next bodily practice introduced objects that did not have a well-known use so that students had to explore the multiple ways these objects could be used by diverse bodies. The Strange Object was served on top of a small whiteboard, where they could sketch all the imagined mediations (Figure 4), in a similar way it is done for sketching user experiences (Buxton 2010). After they devoured the objects, they presented their sketches and we revealed the original use, most of the time, for their surprise. With that, we discussed and digested the form follows function dictum, explaining that form and function are cultural relationships, mediations, not determined by the medium properties. Students absorbed that the affordance relationship between the body and object is permeated by culture and cannot be determined solely by design. This enabled them to see the difference between medium and mediation from a cultural studies perspective (Martín-Barbero 1993). In this perspective, the human Other is always present in the objects the Self interacts with, or better, interacts through, once the Other is always indirectly affected.
4.3 Technology-mediated oppression cycle

After celebrating the hybridization of affordance, we posed another question to students: "what is the role of interaction design, if it is not possible to design interactions as determining them?" To build a non-deterministic notion of interaction design, we first had to show that the so-called users also design interactions for their own sake. Building upon the admired concept of designing with intent (Lockton 2013), we proposed students to devour this concept from the Self point of view, not from the Other. In other words, to celebrate being a user in its full existence (Gonzatto 2018). This meant being able to identify and distinguish the intended usage from the possible usage of a particular design.

The bodily practice consisted of choosing an everyday object outside the classroom and recording a short video demonstrating, first, the intended use and, second, 5 to 10 possible uses that go against the designed intent (Van Amstel, Gonzatto, and Moro 2018). We called these counter-projects, digesting Lefebvre's vision of the concrete reactions to abstract urban projects (Lefebvre 1991). These videos were later watched collectively in the classroom and, knowingly, some students designed humourous counter-projects to enrich the celebration, like the ones shown in Figure 5, which displays funny usages for a barrier gate. Intent, instead of serving as an instrumental design concept, served as a critical concept that enabled speculating and investigating who was behind and ahead of the design. This enables them to develop a critical Self in either position — as designers and as users.
Through counter-projects, students engaged with the problem of designing with intent, however, they could not yet design in a thoughtful way (Löwgren and Stolterman 2004), at least in our perspective. During our off-class digestive conversations, we concluded that this was due to the focus on micro interactions (Saffer 2013) and the consequent lack of a historical perspective. After finding the concept of handiness (Vieira Pinto 1960) that extends Heidegger's ready-to-hand (Winograd and Flores 1987) with a Global South perspective, we came to the concept of oppression proposed by Paulo Freire (1970, 2016) and further developed by Augusto Boal (2000) and Iris Marion Young (2004). According to them, oppression is a historical relationship between one social group and another social group. It is characterized, on one side, by the actions of the oppressor group that negates the humanity of the oppressed group, and, on the other side, by the reactions of the oppressed against the unjust relationship. In this view, oppression is not like a problem or paradox that can be solved in a context by thoughtful design (Dorst 2006); it is something that mobilizes organizing social groups to overcome oppression by raising critical consciousness (Freire 1970, Boal 2000). This absorption was key to approach technology as part of collective existential projects.

When admiring the role of technology in amplifying or reducing oppression, we concluded that technology could never be an oppressor by itself. We digested the concept of technology mediation (Verbeek 2005, Vieira Pinto 2005), which helped to see technology as part of human beings, not as cybernetic autonomous entities that can be
blamed for historical oppressions. We started talking about oppressive interactions instead of oppressor systems (Gonzatto and Van Amstel 2017). This helped to see that some systems could be appropriated by counter-projects to enable liberating interactions (Gonzatto and Van Amstel 2017). After presenting the oppressive interaction concept through examples of dark patterns in interaction design (Gray et al. 2018), we noticed that students were not being able to relate oppression to the Self, only to the Other. Oppression was the problem of an Other that was so distant that they could not realize their own unmet user needs (Shneiderman 1986). Following the recommendation of Freire (1970) that learners need to be confronted with their historical situation to absorb that their needs are produced by unequal distribution of opportunities, i.e. because of privileges that oppressors have and that oppressed do not have.

4.4 Radical alterity cycle

The first bodily practice to deal with privileges was a modified version of the privilege walk, an educational practice in which students are lined up and asked to answer a series of questions about their privileges (Martins 2014). Those who answer positively about the privilege, walk a step forward. In some variations of this practice, there are negative questions that require walking a step backward. In our version, called Digital Privilege Walk, we asked questions about their access opportunities, such as if they had Internet at home since childhood and if they had to give up an online gaming session due to their gender. This bodily practice enabled them to admire the great differences among them. The bodily practice did not end in celebration but the digestion of the questions. Some students objected to the questions that were related to personal merit and not on class privilege, such as "do you speak English?". After that, we changed this question to "does anyone at your home speaks English?", and made similar adjustments to avoid claims of merit in other questions.

The second bodily practice invited them to devour the social pressures they felt in everyday life for a week. We inverted the logic of cultural probes (Gaver, Dunne and Pacenti 1999); instead of designers sending probes to understand users, the probes were taken by the designers to understand themselves. The Emotion Freezer probe consists of a medicine dispenser and a bit of play-doh. Students could model the social pressures they felt on a given day and store them in the dispenser before going to sleep, as a moment of digestion and absorption of daily experiences. At the end of the week, we asked those who were willing to show their pressures to the entire class (Figure 6). With this, we discovered a clear pattern in the pressures reported by students: the effects of banking education in their everyday life. We did not expect this to be the main issue and we felt uncomfortable to celebrate since many of our teacher colleagues were mentioned and criticized.
Figure 6: A student shares the social pressure he registered with the Emotion Freezer probe during a week.

To avoid ending the discussion with the impression that certain people are by nature always oppressors or always oppressed, we proposed them to interview a friend or relative who they admired for feeling the same pressures they felt. In their reports from these interviews, they mentioned being surprised how similar other people felt in the same situation. We reminded them that, according to Freire (1970), oppression is not a relationship between individuals, but a historical relationship between social groups. If the individual is part of a social group, to a large extent, she or he is bounded to reproduce the behavior of that group. We gave the example of the shared aesthetic taste found by Bourdieu (2013) in different strata of French society. These behaviors shape a vision of reality and make it difficult to understand the world from the Other’s point of view.

Instead of encouraging them to develop empathy for oppressed groups, as most of the design studios in the Global North do (Dorland 2018), we encouraged them to approach the Other like in anthropophagy: transforming the Self by incorporating the Other into it (Viveiros de Castro 2012). In design, this translates to the following question: "how to think and practice design with the others in the sense of a radical openness to alterity?" (Szaniecki 2019). That question led us to theater, the Theater of the Oppressed.

Theater of the Oppressed is a critical art practice created by Augusto Boal (2000) inspired by popular theater and the work of Freire (1970). The practice begins by raising consciousness about the effects of living under oppression in the body, such as mechanized gestures and curved postures. Then, through an arsenal of bodily practices, it builds up the courage to react to oppressive interactions in daily life. We experimented with the hybridization of these practices in three different sessions (Gonzatto and Van Amstel 2017). The first session applied the technique of newspaper theater to critically read between the lines of the latest news on technology. The second explored the aesthetics of the oppressed (Boal 2006) to represent oppressions using dramatic games, everyday movements, and gestures that challenged taste regimes (Bourdieu 2013). The last session, based on forum theater (Figure 7), revealed the difficulty of devouring oppressions in everyday life.
In all these sessions, the students alternated between playing the Self and playing the Other, helping them to absorb that the Other is always implied in the actions of the Self and that, in oppressive relations, every action is political (Freire 1970, Vieira Pinto 2005). For example, doing nothing when witnessing oppression puts the Self on the side of the oppressor group (Boal 2006). In the design practice, this is analogous to implementing dark patterns (Gray et al. 2018) in e-commerce website design by following orders from the hierarchy above and to reproduce the aesthetic taste regimes of the elite class (Bourdieu 2013) in an interface that is supposed to be used by all classes. In addition to these oppressive interactions, students investigated smartphone-powered sexual harassment of women commuters, worker platformization, online family surveillance, racist algorithms, digital populism, and many others.

By embodying the oppressor and the oppressed, they realized that they had to devour much more than mental models (Norman 2002) when taking responsibility for the Other in design. Sketching user experiences (Buxton 2010) was not enough for that; they needed to act with their conscious bodies, which means being conscious about the historical origins of body limitations and possibilities (Boal 2000, Freire 1998). Waking up the conscious body through the Theater of the Oppressed allowed the students to celebrate ethical issues in a way that no philosophical concepts we tried before could — for example, the post-phenomenological concepts of Verbeek (2005). This was instrumental in absorbing the design critique as social critique (Bourdieu 2013).

This is not an exhaustive description of the cycles we went through, but a description of the most insightful for this research/education program. These practices did not follow a masterplan; they evolved in an erratic fashion. Every time we tried one, we went through the hybridization cycle and modified a few things in the next cohort. There are plenty of practices that we tried only once and quickly abandoned them. Since we had the freedom of changing the course syllabus every cohort, we used this opportunity to converge our research and teaching interests. We used all the freedom we had, but we did not transgress any rule of the educational system. Along with these educational practices, we had regular classes, project work, grades, and we even failed some students, all according to the national policies and the pedagogic project of the bachelor program. Reflecting on this, we believe we need to strengthen critical pedagogies in interaction design to fight the banking education oppression. The next section discusses
this very possibility.

5. Towards a Critical Pedagogy for Interaction Design

The current discussions about the need for autonomy, criticism, and democracy in interaction design (Escobar 2018, Bardzell and Bardzell 2016, Smyth and Dimon 2014) and our experience in dealing with these issues in the anthropophagic studio suggest that there is a pressing need for critical pedagogies in interaction design education. The anthropophagic studio is a step towards that, but it does not fully realize what is typical from critical pedagogies. For example, in critical pedagogy, students and teachers typically act as knowledgeable research partners in a collective investigation about their reality, helping them to actively shape their destinies. We tried to develop a critical stance over reality, however, we did not start the pedagogical process by asking students to bring in their reality as a material for investigation. The bodily practices we created enable them to express their reality, yet in our frame of reference. Following Freire (1970), we should have developed the frame of reference together with students.

Despite knowing this, we decided to plan the learning experience ourselves. There are two reasons for that: 1) the other courses from the same bachelor did not try critical pedagogies either, so this would represent a risky rupture in the modus operandi for both teachers and students; 2) there was a lack of references about critical pedagogy in interaction design to devour. There is a demand, at least coming from our educational practice, for more research about critical pedagogies in interaction design.

It is a missed opportunity (symptomatic to the Global North) that the Scandinavian participatory design school, despite being influenced by the Pedagogy of the Oppressed in its beginnings (e.g. Ehn 2017, Ehn 1988, Carlson et al. 1978), did not follow the subsequent works of Paulo Freire, who developed further the notion of critical pedagogy in many ways (Freire and Guimarães 2013, Freire 1994, Freire 1993). The works of Augusto Boal are sometimes referred to in interaction design literature (Penin and Tonkinwise 2009, Brandt and Grunnet 2000, Tiitta et al. 2005, Newell et al. 2006, Rice, Newell, and Morgan 2007, Boess, Saakes, and Hummels 2007, Spence, Frohlich, and Andrews 2013), yet not to discuss his critical pedagogy. The most advanced research looking at critical pedagogies in interaction design we are aware of are currently being conducted by brave Brazilian researchers that insist working on the issue, despite the growing public attack performed by politicians on Freire's legacy — including the current President of Brazil Jair Bolsonaro.

The path towards a critical pedagogy in interaction design is also connected to...
contemporary discussions about anti-oppressive design (Smyth and Diamond 2014), *diseños del Sur* (Borrero 2015), epistemologies of the South in design (Fry 2017), decolonizing design (T. Schultz et al. 2018, Tlostanova 2017), ontological design (Escobar 2018, Fry 2017), and cultural studies of design (Escobar 2018, Nold 2018). This research adds to these discussions a model for describing hybridization practices based on the Brazilian tradition of anthropophagy. The goal here was to provide a critical review of the design studio from the Global South perspective, yet some of the findings may be useful for building southern theories of design.

Northern theories of interaction design usually conceptualize interaction as an alterity relation between human and computer (Shneiderman 1986), mind and world (Norman 2002), or human and non-human (Verbeek 2005). The anthropophagy hybridization model presents an alternative foundation for interaction, based on radical alterity between human Self and human Other. Andrade defines radical alterity as "the feeling of the other, that is, of seeing the other in oneself, of seeing the disaster, mortification or joy of the other in oneself" (Andrade 1970, 141). We add that technology is also something that can be seen in the Self as coming from the Other. This means the Other always have her or his technology before interacting with the Self.

Interaction design, from this humanizing perspective, does not invade the Other to implement a digital technology that fulfills something that the Other lacks — such as a need — but create opportunities for different people to see each other as full human beings. If what is seen is also eaten, both Self and Other, both designers and users, transform through this technology mediation. Critical pedagogies in interaction design can help to humanize these transformations so that they do not reproduce oppressive relations.

6. Conclusions

This paper documents the birth of the anthropophagic studio, a hybrid approach for interaction design education that counters banking education and colonialism. The anthropophagic studio does not ignore or hide foreign concepts coming from the Global North for this sake. Instead, it critically digests them through bodily practices. These practices were useful to decolonize the mindset of interaction design students and inspire them to deal with social issues that are not typically associated with the profession, such as human rights, ethics, politics, ideology, and oppression. In this way, they were trained to be technified barbarians that deftly respond to their localities rather than by-the-book interaction designers.

This research found that the design studio is not a universal, neutral, or a timeless approach to design education. It was developed by European schools and, thus, embodies European values and definitions of what design is and what a designer could be. When appropriated by the Global South, these values and definitions should be taken with a good grain of salt. Educators are left with non-trivial questions such as: what does interaction design means in my locality? Which kind of designer do we want to train? Which kind of design autonomy should we nurture?

Reflecting on our answers to these questions, we recommend interaction design
educators, especially from the Global South, to seek localized ways of learning interaction design. Interaction design students should not be passive receivers of knowledge but also teachers should not reproduce educational approaches without some degree of appropriation. Therefore, we do not recommend importing our anthropophagic studio or applying our hybridization model outside of Brazil, which already has a cultural tradition we could hinge upon. Instead, we recommend hybridizing the practices and concepts we described here with local practices and concepts that were already used for fighting colonization, such as buen vivir, sumak kawsay, ubuntu, hindi swaraj, and others. From these concrete experiments, it would be possible to look for similarities and build southern theories of (interaction) design. According to our initial findings, this effort is necessary to make interaction design more relevant to local contexts.

The tradition of anthropophagy crafted by movements such as modernism, tropicalism, and digital culture was useful for us, as interaction design researchers and educators, to conduct innovative pedagogical experiments based on the available resources, which did not include a laboratory equipped with the latest technologies (for further details on this historical trajectory see Van Amstel et al. 2011). Likewise, our country’s everyday life also did not include cutting-edge technologies. Getting closer to what is available at the local level does not mean accepting the condition of a lack of resources, to the contrary, that means criticizing that condition while using the resources which already exist or are about to exist in the students’ reality. The anthropophagic studio is not a low-cost approach to interaction design education. It is a call for the development of critical pedagogies in interaction design, beginning with our practice.

Despite thinking primarily about the issues found in the Global South, Freire and Boal developed their critical pedagogies in places from the Global North for quite some time. It would be interesting to see researchers and educators doing the opposite flow, coming from the Global North to learn how critical pedagogy is developed in the Global South. Solidarity, in contrast to universality, is the basis for mutual understanding in this globalization effort. It would yield even better results if researchers from different places of the Global South could meet more often. This effort would not compensate for the numerous visits researchers and educators from the Global South have already paid to design studios in the Global North, but it could nurture strong alliances in the fight against oppression, especially now that the phenomenon is globalized as much as localized due to the intensive use of social media. In the spirit of anthropophagy, while devouring others, we also made ourselves available to be devoured. In the case of this paper, in a language that is not our mother tongue. So, come and visit us. We love human flesh.

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