HISTÓRY AND PHILOSOPHY OF EDUCATION

Qualitative research in Education: weaving mesh post-critical analysis networks

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ABSTRACT. It is worth mentioning that these reflections preceded the COVID-19 pandemic by almost a year. We cannot 'close them', beginning the year 2023, without recognizing his efforts as those of the mother bird, feeding the chicks in the concretes of a contemporary city. Example of phenomena that make 'bloom in the cracks of racism and discrimination' (secular pandemic in societies like the Brazilian). How to flourish more through scientific research? This instigates looking at research as an activity inherent to human beings, although academia is seen as something that can only be appropriated by groups with 'scientific' skills and competences, evidencing new discoveries, theorizations and concepts, forgetting the solutions given to the implications the risks of our lives and the creative formations, present in the data or experiences put into analysis, to weave analytical networks of knowledge through different networks of meanings, using software, art, photography, or any other way of communicating, the languages of life. It is about the infinite methodological possibilities of doing research that this article discusses, aiming to stimulate reflections on some ways of producing and analyzing data in qualitative research in education with post-critical methodologies. They are 'liveable textures' moved by the creativity of the narrator (Benjamin, 1994) or researcher - that potter as thes person who molds and manufactures a clay pot or the weaver who produces cloths, tapestries or 'fuxicos' - woven with leftover fabric, cut into small pieces, circles and sewn together in the form of flattened polyhedrals. They form a mosaic in which parts and the whole are related and intertwined (Pereira & Passos, 2009). It makes specific recommendations from some literature on the use of content analysis, discourse, ethnography and decoloniality, based the authors weaving experiences in the production and analysis of data in post-critical educational research.

Keywords: qualitative research; education; analysis networks; discursive meses.

Pesquisas qualitativas em Educação: tecendo redes de análises pós-críticas em malhas

RESUMO. Vale destacar que estas reflexões antecederam a pandemia da COVID-19 por quase um ano. Não podemos 'fechá-las', iniciando o ano de 2023, sem reconhecer seus esforços como os da mãe pássaro, alimentando os filhotes nos concretos de uma cidade contemporânea. Exemplo de fenômenos que fazem 'florir nas fendas dos racismos e das discriminações' (pandemia secular em sociedades como a brasileira). Como florir mais através das pesquisas científicas? Instiga olhar a pesquisa como atividade inerente aos seres humanos, embora, a acadêmica seja vista como algo que só pode ser apropriado por grupos de habilidades e competências 'científicas', evidenciando novas descobertas, teorizações e conceitos, esquecendo-se das soluções dadas às implicações nos riscos de nossas vidas e às formações criativas, presentes nos dados ou experiências postas em análise, para tecer redes analíticas de conhecimento por diferentes malhas de significações, usando *softwares*, arte, fotografia, ou qualquer outra forma de comunicar, as linguagens da vida. É sobre infinitas possibilidades metodológicas de fazer pesquisa que este artigo discute, visando estimular reflexões sobre alguns modos de produzir e analisar dados em pesquisas qualitativas na educação com metodologias pós-críticas. São tecituras vivíveis movidas pela criatividade da pessoa narradora (Benjamin, 1994) ou pesquisadora – aquela pessoa oleira que molda e fabrica um pote de argila ou a tecelã que produz panos, tapeçarias ou 'fuxicos'– construído com sobras de tecido, cortados em pequenos círculos e costurados na forma de poliédricos achatados. Formam um mosaico em que partes e todo são relacionados e imbricados (Pereira & Passos, 2009). Tece recomendações pontuais de algumas literaturas acerca do uso da análise de conteúdo, do discurso, da etnografia e da decolonialidade, a partir de nossa própria experiência tecelã na produção e análise de dados nas pesquisas educacionais pós-críticas.

Palavras-chave: pesquisa qualitativa; educação; redes de análises; malhas discursivas.

Investigación cualitativa en educación: tejido de redes de análisis poscrítica en mallas

RESUMEN. Vale la pena mencionar que estas reflexiones precedieron a la pandemia de COVID-19 por casi un año. No podemos 'cerrarlos' a partir del año 2023, sin reconocer sus esfuerzos como los de la madre ave, alimentando a los polluelos en los hormigones de una ciudad contemporánea. Ejemplo de fenómenos que hacen 'florecer en las grietas del racismo y la discriminación' (pandemia secular en sociedades como la brasileña). ¿Cómo prosperar más a través de la investigación científica? Impulsa mirar la investigación como una actividad inherente al ser humano, si bien lo académico es visto como algo de lo que sólo pueden apropiarse grupos de habilidades y competencias 'científicas', evidenciando nuevos descubrimientos, teorizaciones y conceptos, olvidando las soluciones dadas a las implicaciones los riesgos de nuestra vida y las formaciones creativas presentes en los datos o experiencias puestas en análisis para tejer redes analíticas de conocimiento a través de diferentes redes de significados, utilizando software, arte, fotografía o cualquier otra forma de comunicar los lenguajes de la vida. Se trata de infinitas posibilidades metodológicas de hacer investigación que este artículo discute, con el objetivo de estimular reflexiones sobre algunas formas de producir y analizar datos en la investigación cualitativa en educación con metodologías poscríticas. Son tejidos que puede cobrar vida movidos por la creatividad del narrador (Benjamin, 1994) o investigador -ese alfarero que moldea y fabrica una cazuela de barro o el tejedor que produce telas, tapices o 'fuxicos'- construidos con telas sobrantes, cortadas en pequeños pedazos círculares y cosidos juntos en forma de poliedros aplanados. Forman un mosaico en el que las partes y el todo se relacionan y entrelazan (Pereira & Passos, 2009). Hace recomendaciones específicas de alguna literatura sobre el uso del análisis de contenido, el discurso, la etnografía y la decolonialidad, a partir de nuestra propia experiencia tejedora en la producción y análisis de datos en la investigación educativa poscrítica.

Palabras clave: investigación cualitativa; educación; redes de análisis; mallas discursivas.

Introdução

> He had on his face the dream of a lost bird. He spoke in the language of birds and children (Barros, 2007, p. 7).

Even in the 21st century, research focused on issues of inequality proceeds with timid steps and unrestrained voices concerning the most objective realities of Brazilian society. Social research conducted in postgraduate programs points to the need to detail the communications of discrimination in its various manifestations and forms of masking, particularly in studies of Brazilian racial relations.

Many challenges are faced in educational research in contemporary Brazilian society, among which are the 'access (elicitation) of relevant information and data production-analysis' in contexts compared to the networks woven with fibers (metallic/urban concrete) that articulate meanings among the subjects ('little baby birds', social agents) who inhabit, dream, and take risks within these networks, interrelationships.

How to observe/perceive/produce/intervene in these networks (woven with social and educational fibers) that enable access to information for academic research? With what and how to construct or propose analytical devices woven within these networks in a more critical scientific investigation? To reflect on these questions, we might dwell on the images and the phrase above – poetry by Manoel de Barros (2007) – using metaphors that inhabit and displace us to rethink educational research.

To understand: what, how, and why to do with the information accessed during the investigative fieldwork, we consider that data production and analysis depend on the context, the investigated theme/problem, and the researcher to define forms of writing and dissemination of the research which, in this reflection, is qualitative in nature and raises the following questions.

What constitutes qualitative research? What specificities support post-critical research methodologies? What lives, what risks, what kind of researcher is involved in this type of investigation? In data production/analysis, is it possible not to consider what prompted us to investigate or what bothered us about a theme? What ground do we tread on these contexts/networks? How do we react to this ground and its risks? What places and times accommodate and unsettle us? What do the authors of the study want to warn us about? At times, they speak to us in 'the languages of birds and children', with which we need to think-work the research. At other times, in order to understand these languages, we need to move to the wall with woven meshes of the complex social network that these subjects inhabit, using multiple methodological bricolages, as shown in the compositions that follow (Figure 1):
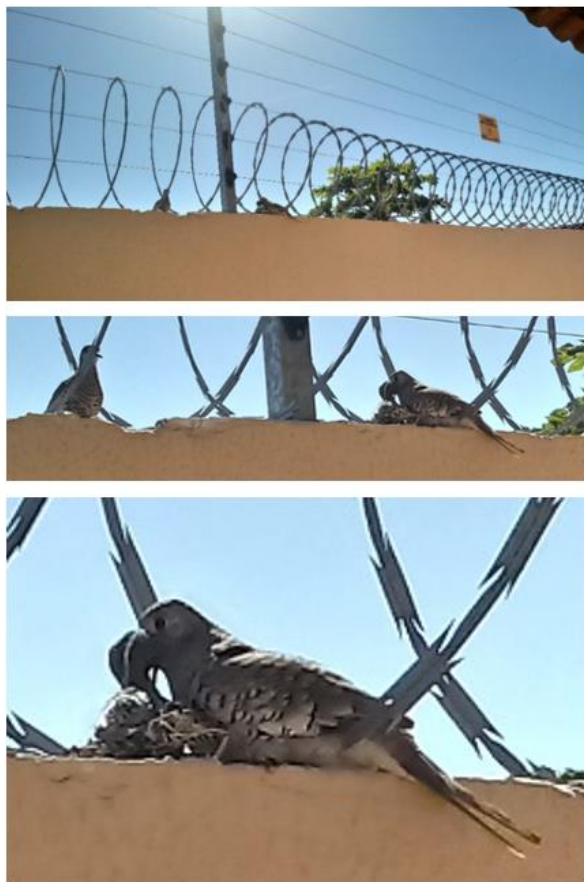
Figure 1. "Risk and Life", FBS, mobifotografia, 2019.
Source: Private collection of the authors of this text

In these compositions (Figure 1), the photograph was unfolded into two more copies/details, each time closer. Zooming in on the photo and enlarging it is reminiscent of the actions of researchers who need to pay close attention to the details of their research, and, more than ever, to their ways of seeing the world and selecting the issues they consider important. Life requires research and investigation where details matter. Any species needs this to (survive) live better. The "fogo-apagou" bird (scientific name *Columbina squammata*), right after preparing the nest, lays its eggs in trees that can shelter its chicks. However, in urban areas, it is increasingly difficult to see trees. So, how to adapt and continue existing without succumbing in this scenario? What does this have to do with the attitude of researchers in their data production and analysis?

In the photos, the bird had been in this place for six months when we aimed the mobile camera device (mobile photography using a cell phone, or photography in movement) and took this picture. We followed the entire nest-building process, the daily rest, the fateful sun shining on the animals, until the birth of the two chicks. Every moment the sun changed position, she turned her face to the opposite side, defending herself from the scorching rays. That photo day was special. She had gone to get food and returned with another bird of the same species. While she fed food into her chicks' mouths, the other bird kept watch. We noticed she was quite relaxed, unlike other days when she was alone incubating her eggs. Every movement, every sound, every different situation seemed a threat and she would puff up her body. Inside the electric wires and concertinas, were they safe? From what? From whom? Safe how and for what? Many questions filled our minds as we observed this natural-urban-cultural (social) experience. A landscape that speaks to us of the society we fabricate every day as subjects or researchers.

This happens daily in life. Living on the edge of wires and the sharp meshes of life is possible when we propose to perceive ourselves culturally, socially. After eliciting relevant information, producing data, and analyzing them in a scientific investigation, particularly in the Social-Humanities, we can also establish ways to understand/be in the world.

Research demands a lot of care and depth. In everyday life: going to the supermarket, renovating a house, taking care of health, among other situations, we ask questions: what knowledge do we have about the situations that afflict us? What are the appropriate or necessary times, spaces, knowledge, practices, and costs

for solving the problems that torment us? How do we face and solve situations? And, observing the work below, can we reflect on many ways to handle the data of a research? Let's look at Figure 2.

Figure 2. *Aire Baile*, Flora Sutton, mixed media, iron and wire, 2016.
Source: Montevideo, Uruguay, 2017. Mobifotografia, FBS, 2017 (Private collection of the authors).

In the Figure 2, Argentine artist Flora Sutton can express, through the space of the exhibition hall, a ballet in the air with meshes that provided a dialogue between the limits of 'inside and outside'. Thus, she designed a fabric with iron and galvanized wire that merge and organize various interweavings, which are connected to each other by their own positions and materials.

We have a network with articulating fibers such as silk, canvas, paper, vegetable, or metal meshes tied into knots. These knots tie and shape textile threads, intertwining them to form a fabric, whether malleable or firm, resilient or brittle. In this network, it is the narrator/tether who mixes and (re)creates possibilities of explaining and understanding socio-educational realities, metaphorically or realistically, making use of these meshes in networks, interrelationships of meanings and interpretations, with which we entangle ourselves and are entangled on a daily basis.

In this way, we will weave specific recommendations from some literature on the use of content analysis, discourse, ethnography, and decoloniality, based on our own weaving experience in the production and analysis of data in educational research. After all, it is the practical examples of fieldwork that most help us in epistemological reflection; to make analogies; to reinvent and reconstruct, based on 'models', ultimately serving as a source of inspiration and guidance in the weaving of new concepts and analytical instruments.

The weaving of analyses in qualitative research

In studies of archaeology of knowledge and production of knowledge regarding gender and race relations (Machado, 2018), we see that the development of 'content analysis' is frequently used in qualitative educational research, primarily under the guidance of Bardin (1977), who traces its historical and theoretical trajectory, its quantitative and qualitative instruments, according to the epistemological dimensions that scientific discourse privileges at each historical moment. We are encouraged to decipher the meaning of what is said, written, and recorded, observing that everything communicated can and should be interpreted from a perspective explicitly assumed with a non-critical, critical, or post-critical bias.

Between 1940 and 1960, the epistemological perspective of research prioritized demands with rigor and objectivity considered universal. Systematic and quantitative description of the content expressed in the communication process carried hidden discourses that needed to be revealed, whether qualitative (subjective and human) or quantitative (Bardin, 1977).

The analyst observes the information and relates it to its context and circumstances. If the intention is quantitative analysis, emphasis is placed on frequency and the degree of emphasis/interest, showing how the attributes of the content emerge. In qualitative analysis, the focus is on monitoring its presence or absence, based on an instrumental or representational model, depending on the theme of interest and the specifics in the 'speech' indicated by the subjects/objects of research.

From the 1960s onwards, there is a greater interest in non-verbal communication, disciplines like semiology and linguistics, and the use of computers. Questions also arise about the feasibility of precision in linguistic work. Does this mean, for example, having the same phenomenon employed in different contexts and by different agents? Capturing the essence of the reality of complex sociocultural relations became more evident.

The analysis of frequencies, presence or absence of attributes in information, has contributed to reflecting on its own potentialities and creating other possibilities, such as 'discourse analysis', which emerges in the context of gaps observed in content-oriented text analyses.

Thus, language as an object of study and aiming at understanding/explaining social reality gains increasing centrality. Different intellectual movements linked to the so-called 'Linguistic Turn' or 'Linguistic Shift' emerge, which in its initial phase allowed two important shifts in relation to the classical theory of content analysis.

> 1) From the study of ideas, understood as mental discourse characterized by introspection, to the study of linguistic and public statements that reveal their logical structure. In this perspective, everyday language is seen as problematic because it is based on imperfect, ambiguous, and imprecise logic.
> 2) From the internal spaces of the mind to the external ones, moving away from considering that it is our ideas that are in relation to the world to affirming that it is our words that correspond to the objects of the world (Spink & Menegon, 2004, p. 264).

This type of analysis emerges questioning more the classical theoretical tools than the procedures of organizing the analysis (pre-analysis – exploration of material – treatment of results, inference, and interpretation). It fulfills the same function as content analysis through different means; therefore, she is the premature daughter of a "[...] bundle of theoretical demands that one tries at all costs to illustrate on a technical level. Its author is by training a philosopher interested in theory of ideologies and history of sciences" (Bardin, 1977, p. 213). Thus, multiple perspectives of discourse analysis are constructed. Iñiguez (2004a), for instance, highlights two groups of traditions:

a) The Anglo-Saxon tradition (American line) includes the Linguistic Turn; Speech Act Theory and Linguistic Pragmatics associated with the Oxford School in Britain, American pragmatism, and Ethnomethodology linked to phenomenology and symbolic interactionism.

b) The French tradition (European line) with works oriented more towards political and sociological aspects includes contributions from Michel Foucault (1926-1984); the Russian school, particularly the Mikhail Bakhtin Circle (1895-1975); enunciation theory; Interactional Sociolinguistics; and Critical Discourse Analysis (CDA).

As we can see, discourse analysis is not exclusively grounded in Linguistics but receives contributions from various fields of knowledge such as Anthropology, Sociology, Psychology, Communication, Philosophy, among others. It is a developing analytical tool that, like content analysis, depends on researchers in their contexts, topics, interests, and ongoing theoretical and epistemological perspectives. For example, the Linguistic Turn has been making several "epistemic ruptures" reacting to formal logic and mentalism.

The hegemony of the philosophy of consciousness favors spaces of subjectivity, interiority, rationality of "how" and "why" we know something and its modes of Cartesian classification (good/bad, beautiful/ugly). With the logical turn, attempts are made to annul previous metaphysical and non-imaginative experiences. More focused on our sensory experiences, on the physical/material world that can be objectified, it establishes itself with the pragmatic turn and questions Cartesian positions, where knowledge is not given to us a priori (previously) by reason (universalized thinking) in the face of reality that confirms it. This reason is imbued with our imaginative capacities, our impressions of the objects of knowledge that we weave in society.

It is with the Discursive Turn (of multiple traditions and interpretations) that we emphasize the power of the message type to understand and generate knowledge about something. This considers the contexts of each subject of knowledge and how this subject articulates, in text, their cultural way of seeing/observing/feeling/understanding/ imagining the world individually and collectively. Where do our feet tread? Where do our bodies dwell? What do our heads do? And where do the spirits and souls of restless memories reside? These turns displace us from the position of thinkers who observe and analyze to the position of subjects who produce ways of observing and analyzing.

The focus is on language itself as a construct of meanings and truths about the researched things. It is not merely a means we use to communicate our analyses but a way to produce and analyze data, understanding the world, real life, through our concerns, questions, and the problems we formulate, articulating knowledge and strategies, as in post-critical methodologies.

> [...] We eliminate the barriers between disciplines. We shift the lines that separate science and literature, knowledge and fiction, art and science, philosophy and communication. We break down the separations between theory and practice, discourse and 'reality', knowledge and common sense, representation and reality. We deconstruct the binary positions that have built so many hierarchies between people and things in the world, consequently, the many types of truths present in the already constructed thought images about our research object. (Paraíso, 2012, p. 35).

With the Discursive Turn, which rejects previous constructions of the Linguistic Turn, it is possible to look/weave other social research practices with more reflexivity. In Critical Discourse Analysis (CDA), this means studying discursive networks, interrelationships "[...] that imply abuse of power, assertion of social control, domination, social inequality, marginalization, and social exclusion" (Iñiguez, 2004b, p. 154).

Understanding these analytical presuppositions is crucial in choosing the theoretical tradition that best aligns with our research intentions. Key questions include: why opt for the French tradition? To what extent does this tradition engage with our epistemological and political positioning? What are its possibilities and limitations? How can we minimize obstacles? How can we make use of the open, multifaceted, and interdisciplinary nature in discourse analyses, including content and defining criteria for CDA elaboration?

Based on Dijk (2008), it is important in research to problematize power relations, especially from the perspective and interests of marginalized groups, whose experiences serve in analyzing subordinating discourses and dominant discourses pointing to other narratives that empower and de-subordinate.

Furthermore, it involves organizing research into two major areas emphasizing discursive networks of "[...] social representations [...] how discourses order, organize, and institute our interpretation of events and society [...]" and of systems where "[...] the generative power of discourses is socially administered, how we attribute different values to them in society depending on who produces them and where they are disseminated" (Rojo, 2004, p. 218).

Thus, we understand that the processes of producing, describing, and interpreting discourses are not ready-made sources waiting for the researcher's benevolent action. Instead, they form a network with academic networks, questioning: Which social process are we going to analyze? What materials are relevant for the analysis? What is the focus of the analysis itself? (Iñiguez 2004b); and furthermore, what is the motivating interest behind all this? We are not talking about 'neutrality' but about the analytical distance between the object of analysis and the analyst, the researcher, considering the care for research assumptions and the choice/production of analytical tools, which are not detached from our experiences of indignation or from social conditions of inequalities and abuses of power. The critical discourse analyst cannot escape reflecting on their own discourse, that of others, and its effects (Rojo, 2004), as this involves knowing the other and knowing oneself.

In ethnographic analysis, this way of scrutinizing oneself and others marks anthropological investigations that analyze materials from travelers, missionaries, adventurers, and scientists about different societies and cultures through fieldwork and description of everyday life. Bronislaw Kasper Malinowski (1884-1942), an anthropologist in the 1920s, made important contributions to the systematization of this type of research, especially concerning the problem of ethnographic co-authorship. Similarly, Edward Evan Evans-Pritchard (1902-1973), an English anthropologist, focused on anthropological research as the translation of other cultures, besides impacting methodology during the height of British colonization (Peirano, 1995).

The development and organization of data in fieldwork, questioning authorship, translation, and their resulting impacts constitute a treasure trove of traces, constantly serving for reanalysis. Curious analysts revisit their targets, the explicable and inexplicable, driving new interpretations that challenge the analytical capacity of the researcher, aiming for the adequacy and quality of ethnography (Peirano, 1995). With emphasis on its interpretative strength (Geertz, 1989) – because the analyst's feet are firmly grounded in everyday life – ethnography is quintessential anthropological work, concerned with describing meanings belonging to different cultures.

Thus, research involves looking at the ground trodden by the birds of our tapestries (realities) beyond our own ground, because interpretations matter and enable cultures and the people they sustain. However, how do we create and recreate possibilities for development, production, and data analysis in education research with post-critical methodologies? In what kind of education? Which data? Which grounds, fabrics, networks, and risks? All for what purpose? So, what considerations arise in this regard in cyberspace?

Developing and producing data and analyses of experiences in cyberspace.

For researchers interested in social practices, cultures, or new socialities occurring in cyberspace, ethnography has been appropriated, adapted, and recreated to investigate virtual environments or communities. Researchers such as Costa (2010) and Silveira (2011) use netnography to conduct ethnographic work in the virtual field, developing analyses and collecting data in qualitative research. According to Amaral (2009), the term netnography is more commonly used among scholars in Marketing and Administration, whereas virtual ethnography is more

frequently utilized in the fields of Anthropology and Communication. Key references in these studies include Robert Kozinets (2010), who adapts ethnographic techniques for analyzing virtual communities, and Christine Hine (2004), who uses virtual ethnography to explore possibilities in cyberspaces.

Kozinets' (2010) proposal outlines four basic procedures (research moments that can be dynamically and interlinked) aimed at constructing netnographic research practices based on ethnographic principles. Thus, it involves: cultural immersion, diving into the virtual field to experience it; accessing its information, conversations, and analysis; observing the ethical dimension of protecting involved individuals and organizing feedback with necessary consultations and inquiries for producing and disseminating research results. Amaral (2009) and Costa (2010) also describe such procedures.

In our experiences of virtual field research, we weave networks through combinations or bricolages of different languages and use of software for qualitative research. Bardin (1977) previously recommended, in content analysis, the use of tools that facilitate the "[...] critical study of multimodal discourse" (Costa, 2010, p. 10), combining multiple linguistic forms (verbal and non-verbal) inherent in expanding virtual learning environments. In this theoretical craftsmanship, we do not seek to define an epistemic-theoretical-ontological-methodological path solely from the philosophy of NVivo's creation or its mere methodological structure. However, in the inventive approach of our creative modus operandi, which we refer to as mesh bricolage, we blend principles of categorization from content analysis and discourse analysis within the framework of virtual ethnography.

Among the numerous digital tools available, we exemplify the use of NVivo (an internationally renowned software package supporting qualitative research data and information processing). Our approach to this application stemmed from doctoral research exploring content analysis, discourse, and virtual ethnography in examining gender and race meanings in an online specialization course from 2012 to 2015. During this period, we encountered studies that utilized NVivo, such as those by Lage (2010) and Teixeira (2011).

Our experience with NVivo did not aim to structurally analyze the software or conduct comparative surveys among many other tools for qualitative data ordering/classification. In our studies, NVivo's unique perspective proved suitable for the inventive/creative use that emerges from researchers immersed in scientific investigation processes.

In a study involving 150 teachers, Lage (2010) employed NVivo in data preparation, coding, and analysis of questionnaire responses, and in the preparation of result reports. Teixeira (2011) discusses researchers' ambivalence and fascination with NVivo's functionalities, noting the non-dichotomy of 'quanti-quali reserach' in Social Sciences, importing structured databases crossed with qualitative material. It is worth noting that these cited studies encompass the context in which our research was conducted (2012-2015), focusing on NVivo 10.

Therefore, we also utilized NVivo's relational philosophy, articulating contents and discourses as units of analysis, and began our work by including research sources (Figure 3), which correspond to participants' discourses in the study (students of an online specialization course in EAD), coded for analysis.
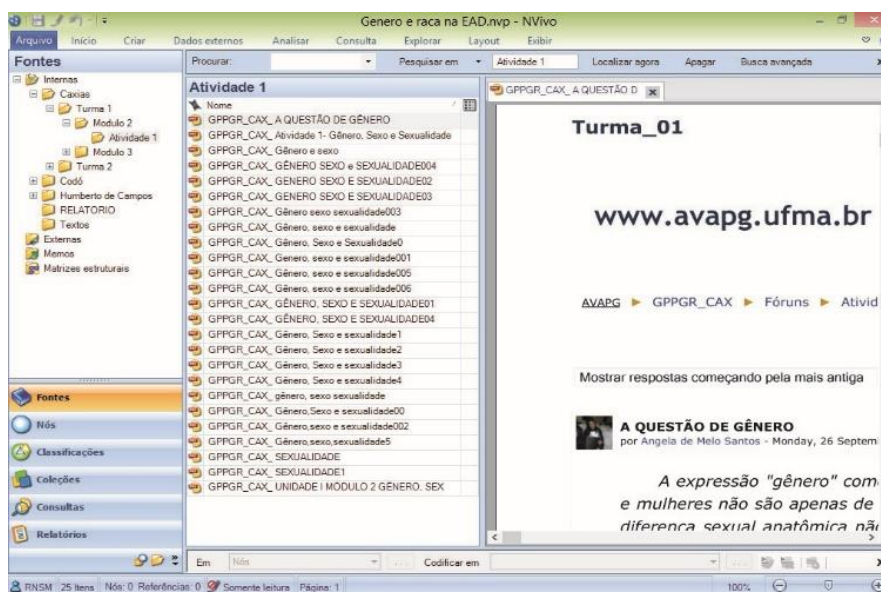

Figure 3. Research sources inserted into NVivo 10.

Source: Image captured from NVivo 10 using the Print Screen feature. (QSR NVIVO, 2014; Machado, 2018).

Following this inclusion procedure, we proceeded with their coding and analysis, represented metaphorically through the fabrication of 'topologies of relational networks' (Figure 4), which schematize the methodological research processes.
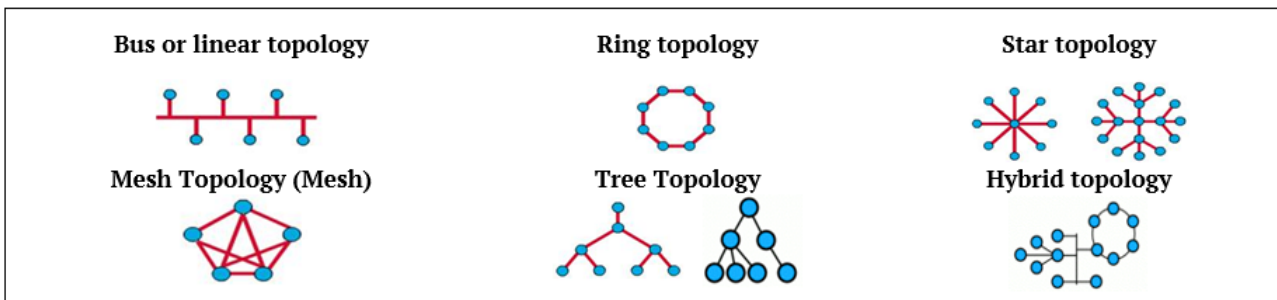

Figura 4. Network topologies - metaphor for sociocultural relationships.
Source: http://www.al.es.gov.br/appdata/imagens_news/rede.htm.

We analyzed various formats of network topology and asked ourselves: how could we model other analytical tools for virtual environments, considering the experiences of Robert Kozinets and Christine Hine with netnography and virtual ethnography, respectively? To do so, we considered as a basic principle for storing, systematizing, and interpreting data, carrying out the procedures of:

1. "Definition of categories": we organize a list of concepts fueled by theoretical and empirical research content. These are called analysis regions and function as nodes that are basic units of data structures; a node can connect to another, forming a network.

2. "Selection of materials": we constitute the empirical corpus of the research with the discourses from virtual environments to be analyzed, and distribute them among the nodes according to appropriate conceptualization already defined in the analysis regions.

3. "Indexing processes": we create codes - nodes and sub-nodes (categories/analysis regions linked to research problems and interests). We group the texts that compose the empirical material, coded/included and stored in the analysis regions in a tree format, arranged in folders (similar to operating systems). Each branch connects to analysis dimensions organized in a hierarchical and relational manner.

Thus, we created the technique of 'Research Topology in Networks (RTN)', based on the principles of ethnographic work in virtual territory by Kozinets (2010) and Hine (2004), and on the procedures of Critical Discourse Analysis (CDA) to analyze gender and race meanings produced in a distance learning specialization course, as systematized in Figure 5.

Lines of response production	Analytical description
NETWORK **The network topology technique** **(product)**	**Point-to-point network topologies:** connection channels in pairs; **Bus or linear**: nodes are connected directly to the bus (coaxial cable), functioning as a unidirectional multipoint; **Ring**: nodes are connected in a single circle of cables, which can be unidirectional or multidirectional; **Star**: has a central node (swith or hub) which connects the other nodes (computers) and manages communication; **Mesh**: each node has an independent physical connection - everyone communicates with everyone else; **Tree**: formed by connecting several star topologies, widely used in modern networks.
Critical analysis of the product/fabric **(CAP)**	Use of the **tree topological arrangement** to represent the normative/assimilationist movements. Use of the **Mesh topological arrangement** to represent critical/problematizing movements.

Figure 5. Tool for analysis in topological networks.
Source: Machado (2018).

This analytical procedure (Figure 5) can be used in analyses of virtual courses, social networks, and hypertexts. It allows us to analyze user posts in cyberspaces and organize discourses by grouping highlighted concepts. Through this methodological bricolage, we developed and mined concepts of gender and race in a

virtual specialization course, specifically from activity posts in forums. We organized discourses by grouping gender and race concepts into two major analysis regions: one region formed by the tree topology encoded as 'normative or assimilationist conception', and the other formed by the mesh topology encoded as 'critical conception or problematization' (Machado, 2018).

Considering this entire analytical framework, each 'node' was associated/represented by assimilationist/normative and critical/problematizing regions, and consequently related to participants' discourses captured from their activities in course discussion forums, as shown in Figure 6.
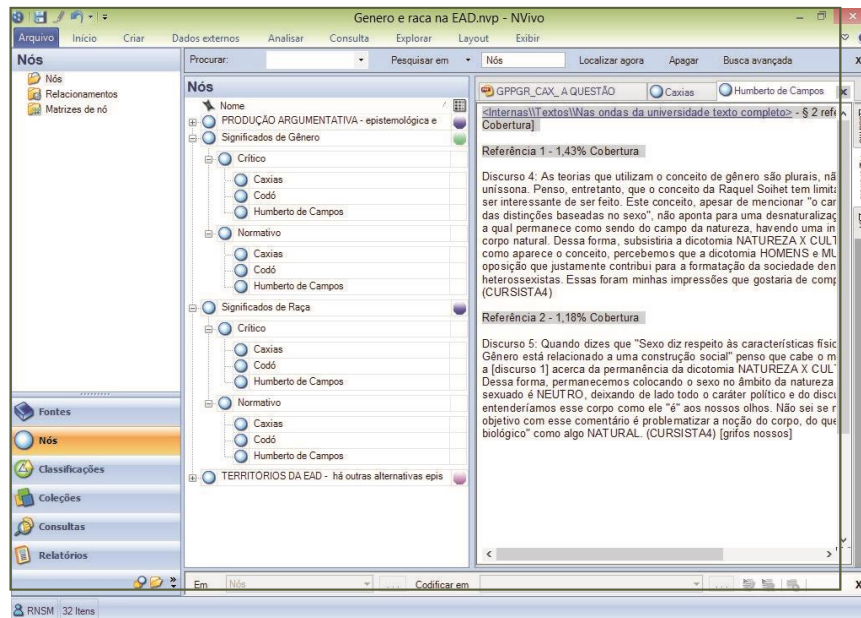

Figure 6. Creation of nodes and coding carried out in NVivo 10 for analysis.
Source: Image captured from NVivo 10 using the PrintScreen feature (QSR NVIVO, 2014; Machado, 2018).

This theoretical-methodological approach, which we named TPR, although nodes are categorized in a tree format, does not necessarily imply hierarchies, linearities, and closed boundaries (Machado, 2018). Researchers can establish relationships between discourses, create links to maintain communication between nodes, observing, for example, that the technological tool offers a mode of representing everyday life interpreted through epistemological, theoretical, and ontological perspectives.

In this TPR, we observed that the pyramidal or tree-shaped region is characterized by hierarchy, where communications occur through the centralization of power in a single core, which organizes the entire system/fabric in a one-to-many relationship. On the other hand, the complex or mesh region radiates in a decentralized manner, is highly relational, maintains communication among all nodes without explicit definition of starting and ending points; contradictorily, it can multiply norms across multiple interdependent systems (Machado, 2018). It is also important to reflect on meshes having excessive flexibility, as noted by Santos (2006, p. 186, emphasis added):

> [...]Fluidity is not a technical category but a sociotechnical entity. It would not achieve its current consequences if new technical innovations were not operating alongside new action norms, paradoxically beginning with what is called deregulation. Contemporary economy does not function without a system of norms adapted to new systems of objects and actions, designed to provide them with more precise operation. In reality, these are "norms established in various interdependent subsystems," whose effectiveness requires continuous monitoring ensured by global legislation, global courts, and a globalized police force. Contrary to the accompanying imagery, deregulation does not eliminate norms. In fact, "deregulation means multiplying the number of norms."

Using the metaphor of creating 'nodes', we represent theoretical categories in a creative way to understand their importance in processes of concept classification and the development of content, discourse, or ethnographic analyses in knowledge production. The use of software, art, photography, writing, or any other form of communication and language to weave analytical networks of knowledge leads us to the meshes of meanings that contemporary society and education allow and demand us to think, feel, dream—even while having on our faces 'a dream of a lost bird'. Speaking in the 'language of birds and children' becomes another

code with which creative researchers attempt to decolonize, think-exist-feel-organize-act-communicate, in ways not predetermined, their daily lives in research.

Herein lies another path to understanding within a methodological process intertwined with forces and power relations that matter at every stage of development, analysis, and dissemination of scientific research. It involves conducting a science that allows us to think beyond common and unquestionable frameworks, to organize, develop studies, and communicate in other ways that better capture the realities at play—all grounded in evident ethics.

Research as a way to weave decolonialities, more specifically...

Returning to the webs in which urban birds are embedded (as depicted in the initial images as epigraphs), as well as to Manoel de Barros' quote (2007, p. 7) – "He had on his face a dream of a lost bird. He spoke in the language of birds and children" – we still ask ourselves: how do we access information and analyze data (inform and construct meanings)? What are our tactics for navigating social-academic pathways like little birds? How do we develop data on walls woven like urban fabrics in the dangers of social educations marked by a culture of subjugation, self-denial, domination, and daily extermination?

Since these educations are woven by a history claiming to be global and universal yet configured as local and situated, full of plural experiences, why not retell our experiences? Enrich the singular in the name of the plural, employing plurality in the name of the universal? Where anthropology conducted scientific studies (neutral) for colonized populations and sociology for the colonizers (civilized-civilizing agents), is there an epistemic way out that questions these scientific achievements in data production, even using everything we've learned from colonialist and unquestioning research? We don't want to deny learning but rather to doubt-question and provoke uncertainties (fissures) in these webs with different learnings. Thinking beyond a worldview to reach plural visions, constructing paths to cosmoperceptions, is to perceive oneself as a human-rational, spiritual, physical, and relational being constantly reinventing, relearning.

Perceiving the accessed and transformed information into data in research as a symptom (a sign, a mark) that needs to be more precisely focused (like the focus of the image of birds) to enable life, more existence. It expands and then distances itself from this to, in the movement, perceive connections. We can treat this same data as an enigma that intrigues us, that makes us abandon the safe places of customary analyses. We can also perceive them through extra-formal contents, often silenced, that surround them and give them life. We believe that to navigate these paths, we will almost always need to (re)tell our stories in our own way and allow others to tell theirs too.

We will need to look at the places of speaking and listening of each participant in the research and, above all, strive to decipher how these stories affect the official history woven by an idea of conquests/winners. The instruments with which we can analyze these stories (fieldwork information) can be understood as depicted in Figure 7.

Figure 7. Photographic montage of artworks from the VII International Biennial WTA of Contemporary Textile Art. - *Por dentro, por fuera y más allá. Diálogos textiles*, at the Cabildo Historical Museum in Montevideo, Uruguay, 2017-2018.
Source: Mobigrafia, FBS, 2017. (Private collection of the authors).

Inside and out, and beyond, the objects exhibited in this exhibition were crafted from felt (Figure 7). They were intricately woven with various materials ranging from plant fibers to metals, all articulated to create a diversity of aesthetics, provoked by complex meshes that elicited different sensations and produced diverse meanings. At times, we had to move from one place to another to better observe the dimensions of each piece and the ensemble as a whole. Do the data we work with in our research, and simultaneously produce analyses from, help us perceive the different potentials of concepts and their connections? To achieve this, we believe it will be necessary not only to depart from customary observation points but also to 'open up' interpretations in the form of oral and visual narratives, for instance, by tensioning the voices in connections of the research subjects. In doing so, we can perceive the boundaries through which these narratives resolve or address ways of being in the world. This process is necessary for us to experience new ways of 'recounting' and to engage with our memories as if navigating the meshes of urban walls, thereby provoking (small/large) educational/social desubalternizations. Even for the boldness of asking simple and direct questions!

A researcher attentive to and engaged in weaving decolonialities can leverage any of the techniques or methods already employed to develop, produce, and analyze data that are most closely connected to the theme/problem. However, it is essential to remember that in the context of the global capitalist and racial world, phenomena such as information and data are integral to a particular way of thinking, and that:

> [...] Identity in politics is crucial for the decolonial option, as without the construction of political theories and the organization of political actions based on identities that were allocated (for example, there were no indigenous people on the American continents until the arrival of the Spaniards; and there were no black people until the beginning of the massive slave trade across the Atlantic), by imperial discourses (in the six languages of European modernity – English, French, and German after the Enlightenment; and Italian, Spanish, and Portuguese during the Renaissance), it may not be possible to denaturalize the racial and imperial construction of identity in the modern world within a capitalist economy. The identities constructed by modern European discourses were racial (that is, the colonial racial matrix) and patriarchal. [...] In South America, Central America, and the Caribbean, decolonial thought lives in the minds and bodies of indigenous people as well as those of Afro-descendants. (Mignolo, 2008, p. 289-291).

Therefore, it will be necessary to bring forth alternative techniques, sometimes unconventional, in dealing with the accessed and processed data/information.

> I say that both the encounters with research participants in the fieldwork and those with other interlocutors in the production of prints can be called Griot Encounters, as in each of them we engaged with our memories narrating stories that generate knowledge. A griot or griot (Dieli) is a troubadour, storyteller, and public animator, and is part of the oral tradition in many places in the African continent alongside traditionalists-domas, who teach in their ancestral connections and hold other knowledge. For a Dieli and especially a traditionalist-doma, "human speech sets latent forces in motion" (BÂ, 2010, p. 172). They are generally linked to artisanal crafts, according to the author. This intrinsic relationship of life (through words) with art (shaping life) [...] (Silva, 2017, p. 50).

This way of researching, reflecting phenomena of realities, may give us wings to create other research instruments, depending on the themes/problems/objectives defined by the researcher. And perhaps, we might make ourselves look at our own "lost bird" languages or speak "in the language of bird and child" to move away from the place already announced by others narrating us as the 'other' of the research. Thus, we will also realize that the boundaries between researcher and interlocutor or research phenomenon are more complex than we imagine. Or rather, we were instructed to imagine or even aspire to.

(In)conclusions – continued reflections

Competent discourse, when arguing with unfounded evidence, of a Brazilian 'racial democracy' is so evident in the daily life of this society that even in scientific productions many researchers fail to perceive that issues of racial belonging, as well as gender, sexuality, and class, are all factors that should help us better understand what Brazil is, this Brazil where the construction of a democratic culture struggles to emerge with sustainable vitality. What is called science, understood as a human activity that best humanizes because its existence is based on the ethics of representing the real in existing realities, cannot escape the bonds of a European, colonizing, and dominant tradition.

Ramón Grosfoguel (2016, p. 25) captured this problem when he stated "[...] that the epistemic privilege of the Western man was built at the expense of the genocide/epistemicide of colonial subjects." The university education of researchers who reproduce accepted forms-content of knowledge follows these Westernized norms, and they can only reproduce knowledge about current realities. They end up being victims of historical

racisms/sexisms of European colonization-education whose logic was built on the ideology of "[...] exterminate, therefore I exist" (Grosfoguel, 2016, p. 25).

To assert what Europe was and continues to be, the other cultures of many other peoples had to be and have to be exterminated. And what better way to achieve this than through a cognitive-intellectual instrument, human rationality according to the dictates of an 'idolatrous Cartesianism' that made the so-called modern-capitalist system succeed with its predetermined, linear, boxed-in, and untouchable structures. In this epistemic universe, thinking outside these structures was not encouraged. In fact, to strengthen the system as a whole, there are constant paradigmatic struggles explained with the help of Thomas S. Kuhn (1922-1996), in his work, The Structure of Scientific Revolutions (1998), initially published in 1962 in English. As Kuhn well understood, the so-called changes in scientific methodologies did not change the essence of this (racist/sexist) system because such theoretical adjustments could not change the structures since they did not touch the base of the Eurocentric worldview of these explanations - paradigms and theories. In other words, it required a shock to the entire system to develop ruptures aiming at the emergence of other ways of perceiving-seeing-listening-understanding life and the world. Decoloniality is the contemporary name given to this posture-practice, an attitude, a mental dynamic that existed before the first contacts between non-European peoples and Europe.

With this reading of the methodological practices of the sciences, we reach where our reflections in the text end. However, it is not a conclusion. It is indeed a point of departure-continuity of methodological reflections around practices aimed at knowledge production, and not just any kind, but those that increasingly approximate the realities of a society like Brazil's with its non-European realities, yet adopting the Eurocentric worldview to continue producing knowledge that makes it difficult to question what they claim we have, and what this, in fact, has done to the majority of the national population. There are even obstacles to recognizing the need to problematize who we are.

Basically, our reflections are provoking considerations about the following questions in the field of qualitative research:

- The first three images of the birds draw attention to which facts of contemporary societies, in particular, today's Brazilian society?

- From content and discourse analyses, which do you consider more effective-efficient in the field of social-human sciences?

- Have you ever imagined using both perspectives in the same scientific study? How would you justify your answer?

- What epistemological conditions (prerequisites) should be aimed at for virtual ethnography to realize its potential in social research?

- For you as a reader, what does a decolonial worldview mean, and what will this imply?

Thus, we argue that it is necessary to inhabit the fields of ecologies of knowledge, not as epistemological tourists, but as epistemic workers. The perspectives of qualitative research will only be inclusive if we rethink the damages caused by our Eurocentric education and understand well the implications of this understanding, and as conscious professionals, make engagement decisions because science, as a human construction, is an ongoing process. Also, we can choose to overlook all epistemological questions because there is only Science - neutral, apolitical, objective, non-historical, and universally valid. It's a situation of diverse double-edged swords, and the preliminary tasks of any scientist/researcher are to choose which side(s) of this instrument to use and for what purposes, as explicitly as possible, places of speech and possible places of listening to emphasize that knowledge is diverse and diversified, and must be treated as such - all the time.

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