



RESIDENCY IN SCIENCE, TECHNOLOGY AND SOCIETY (CTS)
HABITAT, AGROECOLOGY, SOLIDARITY ECONOMY AND ECO-SYSTEMIC
HEALTH: INTEGRATING POSTGRADUATE AND EXTENSION

Andrade . Neder . Tostes . Wiesinieski . Aureliano . Pazos (Orgs.)



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Brasília, 2023

Liza Maria Souza de Andrade | Ricardo Toledo Neder
Simone Parrela Tostes | Livia Barros Wiesinieski
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PRESENTATION

This book aims to present the fundamentals and the basis of the multi professional course in CTS - Science, Technology, and Society in residency (Lato Sensu Graduation + Extension), characterized by a pedagogical practice and educational planning type PEX - research associated with teaching and integrated with extension. The proposal socially and territorially articulates three interdisciplinary themes: Habitat (Housing, Architecture, Urbanism, and Environment in the Countryside and the City); Agroecology (Food Sovereignty, Family Farm, Field, and City Integration); Health (Epidemiological Surveillance, Collective Health, Family Health, Sanitation, Ecosanitation, and Ecological Infrastructure) and a fourth transdisciplinary theme: Associated Work (Solidarity Economy, Training and Education, Occupation, Income, and Solidarity Technology).

The contents of the chapters were developed in the discipline of Special Studies in Technology, Environment, and Sustainability of the Graduate Program of the Faculty of Architecture and Urbanism of the University of Brasília (PPG-FAU/UnB), offered in 2021, integrated into the Extension Course Fundamentals in Science Technology and Society (CTS) - Habitat, Agroecology, Solidarity Economics, and Ecosystem Health, a partnership of the Science Policy Center, Technology and Society (NPCTS/CEAM/UnB) and professors of the Faculty of Architecture and Urbanism (PPG-FAU), the Faculty of Planaltina (FUP), the Faculty of Agriculture and Veterinary Medicine (FAV) and CDS/UnB, the Collective Health course of the Faculty of Ceilândia (FCE), the Faculty of Education (FE) and the Institute of Humanities (IH).

Thus, the process of construction of the Multiprofessional Residency CTS was initiated to form a transdisciplinary epistemological base in Solidarity Technoscience, inserting the University Extension in graduation studies, integrating 15 master's and doctoral students to more than 50 people from social movements, collectives, professional entities, government technicians, researchers and professors from other institutions as well as undergraduate students. The students were organized into working groups in the online meetings by the Teams platform, through which the following themes were discussed: i) solidarity technology, sociotechnical adequacy, and solidarity economy; ii) Freirean education and work; iii) territorial connections, social struggles and networks of solidarity; iv) sociotechnical adequacy for habitat production: spatial patterns in the field and the city; v) sociotechnical adequacy for agroecology and urban agriculture; and vi) ecosystem

health, sanitation, and governance, which make up the contents of the chapters of this book.

In the introductory chapter, it is detailed how the methodological process of structuring the course took place, divided into two parts: 1) theoretical-methodological foundations based on Solidarity Technoscience, forms of Technical Assistance, and the University Extension; and 2) political-pedagogical proposal of the course, including the themes, the territories surrounding the Distrito Federal that will be worked on the course, the curriculum matrix and the general functioning. Then Finally, the expected results and the developments already in progress are discussed.

The essence of the Residency consists in uniting Graduation And Extension in a trans-multi-interdisciplinary character with the vision of university public policy (opposite that of private or official philanthropy) offering vacancies for 35 trans-multi-disciplinary technical agents (managers, urban architects, lawyers, economists, sociologists, social workers, technicians, and engineers, community health agents), of which 28 will receive scholarships, and 14 territorial agents (2 agents from each of the 7 territories of the Distrito Federal and surrounding areas) able to act as multipliers of community initiatives, to provide sociotechnical advice to local entities and to articulate resources, people, entities, tools, and territorial tactics in seven territories surrounding the Distrito Federal in favor of the protagonism of subjects and groups in their daily territories.

The Lato Ssensu Course and the Multiprofessional Residency Extension Program CTS – Habitat, Agroecology, Ecosystem Health, and Solidarity Health (linked to PPG-FAU/UnB and the Extension Decanery – DEX/UnB) are being sponsored by the 2021 ATHIS Notice of the Council of Architecture and Urbanism of Brazil (CAU/BR¹) and with the parliamentary amendment of Mrs. Erika Kokay, directed to the payment of scholarships.

It also has the support of research and extensionist practices carried out by the Research and Peripheral Extension Group, emerging works within the matter of the project “Habitat production in the territory of DF and surroundings: urban and rural ecosystems and sociotechnical advice”, coordinated by Professor Liza Andrade, with drone images produced by engineer Valmor Pazos Filho, as well as with project “Digital Platform Cooperativism (prototype for seven territories of the Distrito Federal), mapping of actors, agencies and sociotechnical adequacy in rural and urban territories of production of the popular circuits of the economy – a CTS approach”, coordinated by Professor Ricardo Neder. Both projects are funded by the Distrito Federal Research Support Fund (FAP-DF).

Support was received from research and experiences of the Agroecology Center of

UnB, coordinated by Professor Flaviane Canavesi, of the Ecoplanetary project, coordinated by Professor Aldira Dominguez, and the Life and Water project in ARIS, coordinated by Professor Perci Coelho.

The list of modules below has the respective module: professors-coordinators and doctoral tutors of ppg/FAU/UnB of the Fundamentals extension course in science, technology and society (CTS) – Habitat, Agroecology, Solidarity Economy and Ecosystem Health.

-Solidarity technology, sociotechnical adequacy and solidarity economy - Professor Dr. Ricardo Toledo Neder - FUP/UnB; Tutor - Lívia Cristina Barros da Silva Wiesinieski;

-Freirean education and work - Professor Dr. Raquel de Almeida Moraes - FE/UnB; Tutor - Ana Luiza Aureliano Silva;

-Territorial connections, social struggles and solidarity networks - Professor Dr. Perci Coelho de Souza - IH/UnB; Tutor - Letícia Miguel Teixeira;

-Sociotechnical adequacy for habitat production: spatial patterns in the countryside and in the city - Professor Dr. Liza Maria Souza de Andrade - FAU/UnB; Tutor - Juliette Anna Fanny Lenoir;

-Sociotechnical adequacy for agroecology and urban agriculture - Professor Dr. Flaviane Canavesi - FAV/UnB; Tutor - Natalia da Silva Lemos;

-Ecosystem health, sanitation and governance - Professor Dr. Aldira Guimarães Duarte Dominguez - FCE/UnB; Tutor - Diogo Isao Santos Sakai; and

-Technical Support - Valmor Cerqueira Pazos - FAU/UnB - master's account FE/UnB.

¹<https://www.caubr.gov.br/athis-edital/>

The course has the partnership of the Nucleation of Residency AU+E UFBA/UnB, the BrCidades Network, the Housing-Advisory Network, the MST, MTST, Fiocruz, Oca do Sol and the following associations in the territories:

- Association of Powerful Women of Santa Luzia - Estrutural City/DF;
- Association of Residents of Santa Luzia - Estrutural City/ DF;
- Association of Residents, Fighters and Supporters of Dorothy Stang Residential - ARIS Dorothy Stang - Sobradinho / DF;
- Nature House in the Sol Nacente- ARIS Sol Nascente - Ceilândia/DF;
- ASPRAFES - Association of Farmers and Farmers FA - Small Rural Settlement William - MST - Planaltina/DF;
- APRACOA - Association of Rural and Artisanal Producers of The Oziel III Settlement - Pipiripau - Planaltina/DF;
- COOPERCARAJÁS - Carajás Agroecological Production and Marketing Cooperative - Brasília/DF;
- Quilombo Mesquita Renovating Association - Quilombo Mesquita - Western City/GO;
- Preserves Serrinha - REDE Association of Preservation and Sustainable Development of Serrinha do Paranoá - Paranoá/ DF; and
- National Coordination of MTST (working in Nova Planaltina - DF) and Coletivo Negro Raiz

SUMMARY

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Freirean Education and Labor Culture



Chapter 02

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Antonio Carlos de Mello Rosa | Yasmim Whitney Moura Benjamin
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FREIREAN EDUCATION AND LABOR CULTURE

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Valmor Cerqueira Pazos⁶

SUMMARY: This chapter presents discussions that incorporate the concepts of solidary technoscience, sociotechnical adequacy and solidary economy and the dimension of work and income from the Freirean perspective, which considers education from the culture of work. Within the matter of the discipline "Fundamentals in Science, Technology and Society - CTS - Habitat, Agroecology, Solidarity Economy and Ecosystem Health", which is an interdisciplinary approach that promotes the integration of knowledge about habitat, agroecology, solidarity economy and ecosystem health, the construction of this chapter, held in a dialogical way, complemented the thematic discussions presented in the classes. From the exercise of evidencing the convergence between Freirian thought and solidarity technoscience, the chapter is divided between theoretical foundation and reports of experiences in the territories, addressing in a transversal way the theme of the discipline

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INTRODUCTION

In the matter of the course “Fundamentals in Science, Technology and Society - CTS - Habitat, Agroecology, Solidarity Economy and Ecosystem Health”, this chapter addresses the fundamentals presented in the course – solidarity technoscience, sociotechnical adequacy and solidarity economy – in a Freirean perspective, which considers education from the culture of work.

For Freire, education is conceived as a practice of freedom (FREIRE, 1987), and should not surrender to market logic. What commonly occurs, however, is the practice of a “banking” education in which the teacher, as a holder of knowledge, deposits “communications” in the students, who will receive them. “In the banking view of education, knowledge is a gift from those who think they are wise to those who think they know nothing” (FREIRE, 1987, p. 38). For Freire, this “donation” is based on an “ideology of oppression”, aiming at the alienation and immobility of the oppressed through ignorance, denying “education and knowledge as a search process” (FREIRE, 1987, p. 38). Liberating education is conceived as overcoming this context, so that everyone – educators and students – can learn from each other (FREIRE, 1987).

Banking education perpetuates the “culture of silence” and stimulates the contradiction between a teacher – the one who knows everything – and a student – who knows nothing (FREIRE, 1987). This logic is systemic and serves a marketing model that involves not only basic education, but also higher education institutions. The cartoon of the Italian pedagogue Francesco Tonucci (Figure 16), who signs his illustrations as “Frato”, performed in the 70s, clearly shows how education is “produced” in order to standardize results aiming at a career in the market, discarding the socially vulnerable, those who do not fit the market standard. If the educational practice has a business vision, of course, there is no room for those who are not inserted in the logic of the market and are socially excluded. According to Dagnino, so is the Brazilian cognitive policy, focused on a reality totally different from that experienced by society: a training focused on the reality of companies (DAGNINO, 2019).

Education as a practice for freedom is necessary for emancipation in the neoliberal context, which persists in making absolute truth in the midst of society.

The fatalistic ideology, immobilizer, that animates neoliberal discourse is loose worldwide. With airs of postmodernity, he insists on convincing us that we can do nothing against the social reality that, from historical and cultural, becomes or turns “almost natural” (FREIRE, 1996, p. 19).

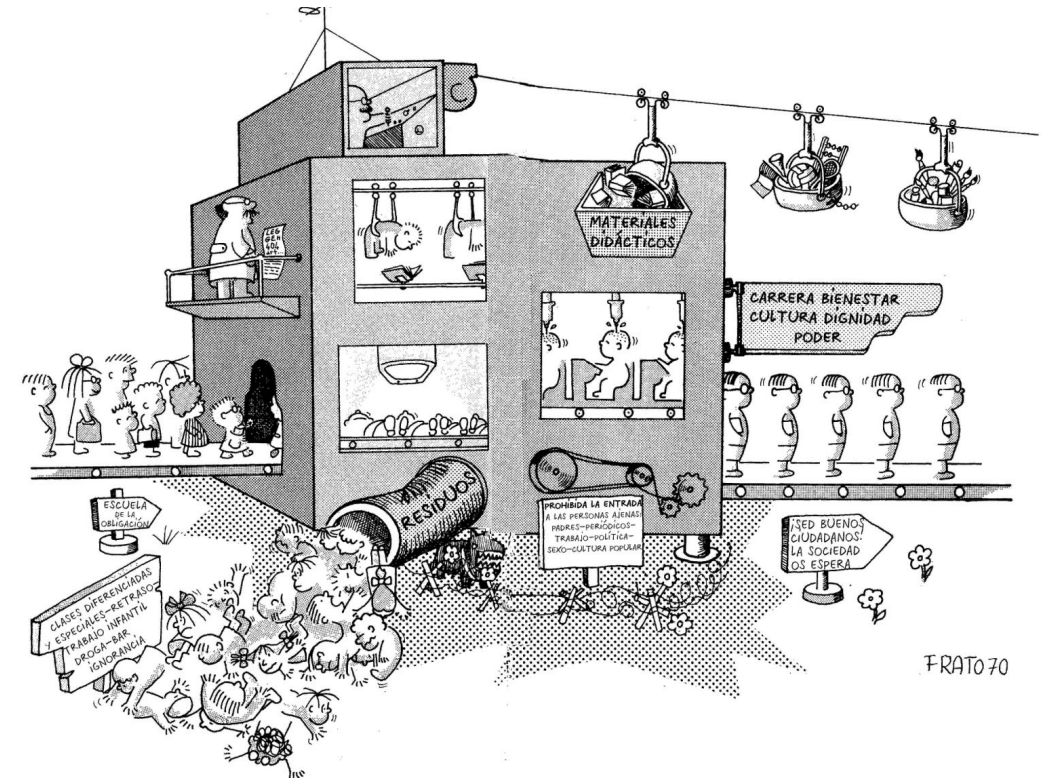


Figure 16: Charge on the educational system. Author: Frato (Francesco Tonucci). Source: Apprentice Portal⁷.

For Freire, from the point of view of this ideology, for educational practice there is only one way out: “Adapting the student to this reality that cannot be changed” (FREIRE, 1996, p. 20), although education represents the opposite. True education, based on the life and needs of workers and society, leads the student to a role not only “of those who see what happens, but also of those who intervene as a subject of occurrences” aiming at the possibility of transformation. “In the world of history, culture, politics, I see not to adapt, but to change” (FREIRE, 1996, p. 77).

In the conditions of true learning, the students become the real subjects of the construction and reconstruction of the knowledge taught, alongside the educator, equally subject of the process. Only then we can really talk about teaching knowledge, in which the object taught is perceived in its reason for being and, therefore, learned by the students (FREIRE, 1996).

It is necessary to assume education as a “permanent practice”, not by a preset of external factors, but by the human being’s awareness of his boundlessness and, thus,

⁷Available in: <https://portal.aprendiz.uol.com.br/2020/05/18/francesco-tonucci-casa-como-lugar-de-brincadeira-e-aprendizado-durante-pandemia/>. Accessed: 03 Feb. 2021.

by his notion of existence in the world. "Not only to know that he lived, but to know that he knew and then to know that he could know more" (FREIRE, 2001, p. 11), and thus to find himself in continuous formation. "It is not possible to be a person without, in this or that way, finding themselves weirdly inserted in a certain educational practice. And entrenched not in temporary terms, but in terms of a lifetime" (FREIRE, 2001, p. 13). Freire also highlights the importance of "thinking right"; a dynamic between educators and students that not only respects the knowledge of students but increases teaching from shared experience and critical positioning. In this sense, for him, the educator who "thinks right" must:

not only respect the knowledge with which the students, especially those of the ordinary classes, come to it socially constructed knowledge in community practice - but also [...] discuss with the students the reason for being some of this knowledge in relation to the teaching of the contents. Why not take advantage of the experience that students have of living in areas of cities careless by the government to discuss, for example, the pollution of streams and water brooks and the low levels of well-being of populations, the dumps, and the risks they offer to the health of the people. Why are there no dumps in the heart of the rich neighborhoods and even purely in the repaired ones of urban centers? This question is considered in itself demagogic and reveals revealing the lack of effort of those who make it. It is a question of subversive, that's what certain defenders of democracy say.(FREIRE, 1996, p. 30).

In search of a transformation with regard to Brazilian cognitive policy, Dagnino theorizes the foundations of solidarity technoscience precisely in a context of counter-hegemonic struggle, which incorporates life in society in its process. For the author, solidarity technoscience is "the cognitive platform for launching the Solidarity Economy" (DAGNINO, 2020, p. 63). The fact is that, if technoscience was indeed adopted by capital, as we will see below, solidarity technoscience presents itself as a possibility of research agenda, teaching, and counter-hegemonic extension. With regard to the educational practice carried out within universities, Dagnino argues that it is essential to have the solidarity economy as an anchor of the university in the social context, not submitting to the "Four Horsemen of the Apocalypse: Scientificism, Productivism, Innovation and Entrepreneurship", inherent in a cognitive policy that, in the name of a "neutral science", turns its efforts, even within public institutions, business demands (DAGNINO, 2020).

The convergence between Freirian thought and solidarity technoscience takes place precisely in the context of emancipation. From a true education, a pedagogy that is part of the daily life of students, one can arrive at an action that actually frees from what is put as a general rule and that excludes a large portion of society, as well as its ways of living and producing. It is a question of, from the awareness of, seeking the "production and consumption of goods and services in networks of solidarity economy" respecting

collective values and interests (DAGNINO, 2020).

The awareness of who we are leads us to the transformation of the world. This awareness is made from counter-hegemonic education and, as we will see later, from a political action focused on the solidarity economy, which works as an anchor of cognitive thinking in society, transforming itself from sociotechnical adequacy (DAGNINO, 2019). The fact is that this Freirean perspective of popular wisdom, of a collective knowledge that actually transforms the world, already establishes in the field of living its dynamics. Survival dynamics become counter-hegemonic struggles from the organization of the collective, by the awareness, in order to move forward, during the inevitable crises of capitalism. These dynamics transform learning, culture, and the world of work as we know it, or how it is "sold". The importance of solidarity technoscience is found precisely in the ability to bridge the gap between technical and scientific knowledge and society, breaking with the educational bias that seeks to meet capital and corresponding to the longings of those who actually support Brazilian public education: the working people.

Dagnino believes that the university with society can make this transformation in the agenda of research, teaching and extension that is not based on the interests of capital, an agenda "based on the reconfiguration of expanding CTS teaching" that is able to guide teachers and students in a more "accurate and effective" way (DAGNINO, 2020). For the author, this strategy allows the materialization of the "intention that excites us": "Through the action of the State, generate a knowledge for the production of goods and services (Solidarity Technoscience) capable of promoting the sustainability of solidarity enterprises that are emerging within the matter of the Brazilian peripheral capitalist economy" (DAGNINO, 2019, p. 19).

The result of an initiative that seeks dialogue with society, making solidarity technoscience, this chapter attempted to elaborate the concepts worked in the discipline, dialoguing with Freireana pedagogy from the work culture. Collectively constructed, the first part of this work deals with theoretical foundations, subdivided into the following topics: "Foundations in solidarity technoscience, sociotechnical adequacy and solidarity economy"; "Labor, occupation and income (TOR) and solidarity economy"; "Sociotechnical adequacy and sociotechnical advice for Freirean education and work culture". The second part, also collectively constructed, presents experiences lived in the territories that dialogue with the perspectives of solidarity technoscience, sociotechnical adequacy, solidarity economy and Freirian pedagogy. The initiative of this discipline makes a political struggle to defend solidarity technoscience as a vector of orientation for the teaching, research, and extension agendas of Brazilian universities.

FUNDAMENTALS IN SOLIDARITY TECHNOLOGY, SOCIOTECHNICAL ADEQUACY AND SOLIDARITY ECONOMY.

To conceive the concept of solidarity technoscience, we need to understand why we come to these terms if we always learn that science and technology are separate things. It is common sense that science is knowledge or a collection of knowledge that translates truth, observed, obtained, and tested by a scientific method. Technology, on the other hand, is the application of knowledge generated by science to achieve a practical result, such as goods and services. But historically are these two concepts separable? The human species has always sought to improve and meet its needs through the search for knowledge that was applied in some useful way. Based on this principle, what man has been doing is historically technoscience. What led us, then, to the concern about the separation of these themes?

For Renato Dagnino (2020), the separation between science and technology leads to the engendering engender of scientific knowledge, and the control of its application to an elitist level, codified and dominated by a few, with exploratory purposes within the capitalist logic. That is, the holders of capital know the operation, leaving the workers (the people) to do what they are taught, in a compartmentalized way, without knowing the “science behind” their work, now exploited by capital (DAGNINO, 2020). Capital dominates, therefore, knowledge (science) and its application (technology), which means that technoscience is also part of a capitalist context. It is used for profit, capital accumulation, and income concentration. The work of the mass, of the people, is exploited, and as the people supposedly have little knowledge, it remains the submission and sale of the force of their work for the measurement of profit by those who hold money, the means of production and the science applied in technology. However, this dominance of capital over work accentuates inequality and misery.

That is why a new concept is needed. The concept of solidarity technoscience. Capitalist technoscience, as stated above, is a tool of capital accumulation, which generates and maintains social inequalities and injustices, the big sickness of our last centuries. Solidarity technoscience would be the denial of all this. The hegemonic control of the means of production has been ineffective infor the search for peace and social justice, leaving the majority of the population to a daily struggle for survival, exploited by capitalist logic. Hunger, poverty and growing inequalities, exacerbated at the present time because of the pandemic, demonstrate that we need production models that allow the breakdown of the

employment/salary logic and a glimpse of the logic of work/income generation, based on knowledge constructed from social movements, collective property, and self-management, with workers being the protagonists of this story (DAGNINO, 2020).

In this sense, Dagnino, when referring to the concept “solidarity technology”, conceived as a programmatic alternative to terms such as “innovation” and “technology”, points out that solidarity technology brings us to some different understandings: i) the way it deals with specialized terms (original, open, mutant and adaptive); ii) knowledge of any nature (scientific, technological, religious, ancestral), in the sense of being the set of knowledge or principles that conduct a particular group; and iii) origin, such as the set of terms of a specific area (academia, companies, originating peoples, popular movements, excluded) (DAGNINO, 2020, p. 69). For him, all these elements should be used through capitalist sociotechnical adequacy, aiming at the production and consumption of goods and services in networks of solidarity economy in which the values and interests of certain groups are respected. However, it teaches us that we must, as a priority, take into account the satisfaction of collective needs (DAGNINO, 2020).

Singer conceptualizes the term “solidarity economy” as a “type of production characterized by equality, having a nuclear definition of the perspective of equality within the enterprises, which causes an environment of self-management” (SINGER, 2008 apud ALVEAR et al 2012, p. 20). In the same sense, Gaiger recognizes self-management, equality between workers and internal democracy as fundamental to the characterization of solidarity enterprises (GAIGER, 2000 apud DAGNINO, 2014, p. 62). Thus, it can be said that for the authors the central focus of solidarity enterprises is on the suppression of the dichotomy between boss and employee.

For Dagnino (2014), the movements that fight for social change in capitalism, as is the case of the solidarity economy movement, have two goals that usually occur, when successful, as sequentially tied processes. The first, known as “awareness” [of the exploited], implies the transformation of “latent conflicts” – those that, despite harming us, are not even perceived by the exploited, since obscured or naturalized by mechanisms of ideological manipulation – into “covert conflicts”.

“Awareness”, then, does not immediately give rise to confrontations between the exploited and the dominant elites; latent conflicts do not turn into “open conflicts”. It is as if the exploited were waiting for an opportunity, a change in the correlation of forces, or an increase in their power in front of the elites to “open” their “covert conflicts” (DAGNINO, 2014, p. 219).

The second process, known as “empowerment” [of the exploited], happens when “covert conflicts” or, less often, “latent” – when the process of “awareness” occurs

simultaneously to a change in the correlation of forces – turn into “open conflicts”.

The solidarity economy movement tends, therefore, according to Dagnino, “to guide the processes of ‘awareness’ and ‘empowerment’ of workers of solidarity enterprises in the direction of self-management; which is clearly contrary to the interests, especially long-term interests, of the elites” (DAGNINO, 2014, p. 219).

For the achievement of the intention to “formulate an analytical-conceptual framework to address the technoscientific issues associated with the solidarity economy”, Dagnino mentions that this objective required “a critique overcoming the concept of social technology used in the solidarity economy movement” (DAGNINO, 2019, p. 42-43). For the author, social technology is considered “all product, method, process or technique, created to solve some kind of social problem and that meets the requirements of simplicity, low cost, easy applicability (and replicability reapplicability) and proven social impact” (DAGNINO, 2019, p. 43). However, the search for solidarity economy requires overcoming this concept as well as two myths that are presented at the cognitive level and that hinder social inclusion: the first is the separation between science and technology; the second is that of the neutrality of technoscience.

Dagnino’s criticism (2019) of the concept of social technology is based on four conceptions, based on Andrew Feenberg’s contributions, they are: instrumentalist, deterministic, ecological economics and critical theory. The instrumentalist conception, which would submit to external control and ethics “to satisfy infinite needs of society”, “supposes in line with liberal, positivist, modern optimism in progress, that technology, resulting from a search for truth and efficiency, is neutral” (DAGNINO, 2019, p. 47). The second, deterministic, is based on the conception of conventional Marxism, which understands technology as an application of science. Maintaining a belief in the neutrality of technology, it incorporates the notion that its development occurs through the demands of efficiency and progress that it establishes itself. Conventional Marxism accepts the idea of neutrality “which is at the root of its economic-productive and social construction”. In a capitalist context, it attributes the “development of productive forces” to the productive interest of the entrepreneur, which is guaranteed by the private ownership of the means of production, because “given that it is linear and inexorable, this development is responsible, in the long term, for the change of modes of production” (DAGNINO, 2019, p. 47-48). The third conception is that of ecological economics, which denies the idea of neutrality, but maintains the idea of determinism, preserving capitalist values and interests. Unlike the other two conceptions, the ecological economics is “pessimistic about the future of humanity since it would tend to hide correlations of changing forces” (DAGNINO, 2019, p. 48-49). The fourth and final

conception, called critical theory, denies the idea of neutrality, thus disagreeing with instrumentalism and determinism, and considers technology as a carrier of values. Critical theory also does not accept the idea of ecological economics that “capitalist values give it immutable characteristics that prevent social change”. This conception considers that technology can be controlled (DAGNINO, 2019, p. 48-49).

It is in critical theory and “in considerations regarding the convenience of using the category of technoscience in place of science and technology” that Dagnino (2008) formulated the concept of Sociotechnical Adequacy (DAGNINO, 2008 apud DAGNINO, 2019, p. 49). Dagnino (2019) announces Sociotechnical Adequacy as an “engaged and optimistic posture”, since it is configured as a social construction, “and can be redesigned through the politicization and internalization of alternative values and interests, as well as the observance of precepts of plurality, internal democratic control and, firstly, in the institutions where it is usually produced” (DAGNINO, 2019, p. 49). The Adequacy also incorporates social actors interested in redesign to this process of redesign, with a “knowledge for the production of goods and services consistent with their values and interests” (DAGNINO, 2019, p. 50).

For the construction of a generic concept of technoscience, Dagnino (2019) points out that to be consistent with his forays into the theme of the philosophy of technology, guided by the contribution of Andrew Feenberg and aligned with Marxism, he was able to provide an adequate guide to make appear, in the concept he sought, elements such as: “social actor, work process, control (self-management or management by another worker during the absence of the owner), property of the means of production (private or collective)” that characterized in an appropriate way the solidarity technology (DAGNINO, 2019).

The author also points out that:

in addition to bringing embedded elements that make a social actor try to modify a work process to better meet his interests, it was necessary that the concept serve the purpose of formulating a concept substitutive to that of social technology that avoided the ambiguity of that commonly employed in the context of social movements, NGOs and government agencies involved with the solidarity economy. And that, thus, could contribute to increasing the effectiveness of its actions (DAGNINO, 2019, p. 51).

Dagnino (2019) presents the generic concept of technoscience as the cognitive result of the action of a social actor on a work process, controlled by him, which allows a modification (qualitative or quantitative) in the generated product (in the generic sense of output) that may be appropriated according to his interest. The author makes it evident

that an alternative technoscience, such as solidarity, emerges in spaces where values and interests converge with an “alternative development”, “which are by extension counter-hegemonic to the dominant ones in those environments where capitalist technoscience is generated” (DAGNINO, 2019, p. 60).

Work, occupation, and income - TOR - and Solidarity Economy

For Dagnino, solidarity technoscience is the cognitive result of collective action on a work process that:

due to a socioeconomic context (which engenders the collective ownership of the means of production) and a social agreement (which legitimizes collaborationism) which include, in the production environment, a control (self-management) and cooperation (voluntary and participatory type), causes a change in the generated product whose material result may be appropriate directly according to the decision of the collective (solidarity enterprise) (DAGNINO, 2019, p. 62).

The author also informs that, after the concept of solidarity technology is placed, its political bias should be emphasized, emphasizing that it:

it follows from the intention, through the awareness, mobilization, participation, and empowerment of popular movements and through the action of the State, to generate a piece of knowledge for the production of goods and services capable of promoting the sustainability of solidarity enterprises that are emerging within the Brazilian peripheral capitalist economy (DAGNINO, 2019, p. 62).

We can say that the political perspective of the transformation of solidarity technoscience is found in its solidary values, distinct from those that move capitalist technoscience. The purpose of solidarity technoscience is “to involve in its development (socio-technical adequacy) workers today located in the informal economy and who should be incorporated into the Solidarity Economy” (DAGNINO, 2019, p. 20). The practice of transformation by knowledge, from a counter-hegemonic perspective, is common to Dagnino and Freire.

Paulo Freire (1987) thinks about the path of the formation of consciousness to transform the world against oppression, against exploitation. To understand Freire, it is important to make interactions with other authors, such as Karl Marx. In this sense, Carnoy (1990) points out that Marx drew attention to a characteristic of the alienation of work, because people sell their workforce directly or indirectly and, in this relationship of sale of the workforce, often the worker does not realize that this is part of a system of worldwide

exploitation. In common sense, what prevails is “gratitude” for work, even though workers are almost always exploited in a rude, ferocious, unhuman and vile way.

Workers are obliged to accept these conditions because, in the context of capitalist reproduction, they find no other way to survive. That is why Marx (2008) characterizes work in the capitalist system as an alienated work, a work that does not collaborate in the formation of consciousness. Thinking about the struggle of classes, Marx (2008) alluded that consciousness has two precious moments that must be the object of workers’ organizations, social movements, groups, networks, settlers, and the MST (Brazilian Landless Workers’ Movement). First, it is very important that the workers perceive themselves as united alongside other workers, that is, that the peasant, the teacher, the doctor, the architect, in short, all the people who sell their workforce feel united with the other workers. This is not an easy task, since the hard life of the worker leads him to think about the problems and perspectives from the condition that is currently, an individualized condition. Marx (2008) draws attention to the need to get out of such a condition – engineer, technical worker, architect, teacher, precarious worker, any worker who sells his workforce to applications, etc. – and perceive himself as a worker, as a working class. This awareness, of perceiving himself as a worker, Marx called it the class itself. According to Marx (2008), to overcome alienation it is necessary to prepare yourself for in struggles, in various fields: in work, in university extension, in occupations, in territories, and in movements. The understanding that you are inserted in the working class is important, but it is not enough, because it is necessary to lead a common working-class history, to build a society that expresses the longings, the needs of the whole from the insertion of everyone. This is the second moment of consciousness: when workers are building their own society, they are defining the processes of rupture with capitalism that ruins society, including removing rights and causing democracy itself to collapse from within.

In the context of collective transformation, Dagnino (2020) brings attention to the pandemic context and to how the solidarity economy is necessary and considerable, at least as a local policy at the municipal level, since it is impossible to be conceived within the current government. Faced with the “new normal”, even in neoliberal capitalism financed, solidarity must be incorporated. For the author, in the current moment, propositions appear “which dialogue closely with the problem and the ‘solucionatic’ of the ES”, and complements:

Even characters aligned with the conventional view, so far exclusively focused on “employment and salary” and “income distribution”, are likely to consider the strategy of “work and income” and “income generation for the poorest” (DAGNINO, 2020, p. 66).

Sociotechnical adequacy and socio-technical advice for Freirean Education and Labor Culture

Freiriano's thoughts take place in a luminous context of Brazilian history, a moment, in a way, combative. First, it is necessary to remember that Freire was thinking about the theme of popular culture and literacy at a time when progressive governments were struggling to make social reforms (agrarian, urban, educational, tax and electoral)⁸. In this context, with President Jango (João Goulart) in the presidency of the Republic, there was a movement around the theme of literacy. Illiteracy reversed the Brazilian political issue: in Brazil, the bourgeoisie restricted the right to vote of the illiterate, from 1881 to 1985, when illiterate voters were able to participate in the elections for the choice of mayors⁹.

In this context, during the first government of Miguel Arraes in Pernambuco, together with the University of Recife in the Extension Center, Paulo Freire developed the Popular Culture Movement¹⁰. Paulo Freire did in Angicos, Rio Grande do Norte, his literacy experience as awareness¹¹. What unifies these experiences is the effort to raise the number of literates, raising the conscience of peasants so that they could vote for governments that make social reforms. For the so-called basic reforms to become a reality, there was a need for a majority in Congress, but since a large part of the Brazilian population did not vote because it was not literate, literacy also became a political game. It was not in the interests of the great bourgeoisie, of the landowners, the literacy of the workers, and even less literacy that led people to become aware.

For Paulo Freire (1987), the first goal of literacy is to remove peasants, and workers from the condition of the mass manipulation. Freire seeks to identify each human face as a person "of flesh and blood" (this can be understood with one recognizing one another and vice versa) (FREIRE, 1987). For the educator, these people would have to be possessed of dignity, rights, and, above all, means to build history, and make history, and this for the bourgeoisie, which still dominates the country today, is inconceivable. Fighting against dominant forces on the eve of a military coup, at that time it was not possible to expand and democratize literacy – nor neither education. The Jango government's move to create a national literacy plan was seen as "the end of the world": "Howhow do the subordinates have

⁸Available in: <http://memorialdademocracia.com.br/card/marcha-reage-com-deus-contra-jango>. Access on: 05 Mar. 2021.

⁹Available in: <https://www12.senado.leg.br/noticias/materias/2016/11/04/por-100-anos-analfabeto-foi-proibido-de-votar-no-brasil>. Access on: 05 Mar. 2021.

¹⁰Available in: <https://www.paulofreire.org/paulo-freire-patrono-da-educacao-brasileira>. Access on: 05 Mar. 2021.

¹¹Available in: <http://g1.globo.com/rn/rio-grande-do-norte/noticia/2013/04/1-turma-do-metodo-paulo-freire-se-emociona-ao-lebrar-das-aulas.html>. Access on: 05 Mar. 2021.

the audacity to put these people, who should be mute, to vote and define the directions of the country?"; "these people can not vote", and can not define the directions of the country". In this context, not only the attacks took place, but the military business coup itself – precisely to block the movement – also prevented preventing these experiences from being carried out.

When talking about the Freirean education, it is important to consider this whole context and the fact that Freire's performance in Angicos was not a class agenda, a socialist agenda, or even an anticapitalist agenda. It was, first of all, an agenda in favor of basic rights, social rights, and basic reforms, that is what was at stake for him. Advancing a little more in Freire's thinking at that time, it is possible to notice his perception that workers did not have the right to study, that they could not attend a school during the day, a school with good conditions. Freire (2002) calls the awareness of the great mass of these workers "intransitive", because it is a consciousness very attached to a fatalistic logic (FREIRE, 2002), something like when one person asks the other why he is poor, to which the other responds that he is poor because God wanted or because it does not rain for planting, that is, the blame fell on nature. A fatalistic, superstitious consciousness that does not allow us to understand the essence of exploration.

The goal of the Freireana pedagogy is to overcome, put an end to intransitive awareness and do what he called transit to the insertion in a society that guarantees social rights, and dignity to workers. This process he called transitive awareness (FREIRE, 2002). From the Freirean perspective, it is the consciousness that makes it possible to understand the problems: "Why drought?", "Why exploitation?", "Why don't we have labor rights?". For the educator (2002), already at that moment, the transitive consciousness needed prose, dialogue, and community union – he needed to change the teacher's place so that he would stop being the person who knows everything to join the people who know nothing.

It's about listening, proselytizing proselytising, and dialoguing. Critical awareness must problematize the "magic answers" – "I am poor because God wanted" – for an in-depth analysis of how society is constituted, of how social rights are constituted, and it is in this perspective that Paulo Freire begins to deepen the concept of "formation of consciousness". In the Freirean conception of science in the field of literacy, culture circles stand out (Figures 17 and 18). Culture circles make room for each participant's voice. They create the idea that a dialogue is needed, that every process of literacy is a process of cultural elevation of human beings, who begin to better understand what nature is and what society is, in addition to how men and women historically interact with each other (FREIRE, 1987, 1992). According to the report published by G1/RN (2013), the Freriana literacy method is interesting because it



Figure 17: Paulo Freire during a visit to the Gama Culture Circle in September 1963. A circle of digital culture in which the students watched the projected films and then related the plots to their own lives. Source: Museum of Education of the Distrito Federal¹².



Figure 18: Circle of Culture of the Gama, in September 1963. A circle of digital culture in which the students watched the projected films and then related the plot to their own lives. Source: Museum of Education of the Distrito Federal¹³.

brings a vocabulary universe contextualized in the circle of culture, and from this vocabulary universe the generating words originate. For example, the word “brick” opens the door to other questions: who makes the brick? Who’s going to live in the house that has the brick and who’s going to live in the wattle and daub house? The From the generating words opens the interpretation not only for the reading of the word, but also for the reading of the world, and this is what is called awareness. Therefore, Freire sought to bring people to understand their real conditions, to understand the place of the oppressed, so that they could act in favor of their own liberation. This is the second point (Figures 19 and 20).

Freire understands that the fight against oppression has to be the work of a pedagogy of the oppressed, and not for the oppressed. That is, pedagogy should not be aimed at workers, but belonging to them. This logic is clearly inserted in an anticapitalist perspective, which deepens and systematizes in a theoretical reflection when Freire travels to Africa (Figure 21) and met the socialist struggles, especially with Amilcar Cabral (FREIRE, 1978). From this meeting with Amilcar Cabral, Freire reflected on other dimensions important for the present day, such as oppression by racism and sexism.

Paulo Freire is a writer/theorist who is necessary nowadays, because we are living in a world that is still tied to oppression, racism, and intolerance. In this sense, Freirean pedagogy understands that the socialist struggle is a struggle to restore the dignity and word of every human being.

The pandemic of covid-19 served to ratify for the whole society the social inequalities that permeate the educational field in Brazil, especially in the territories of more social vulnerability. In this context, students are being neglected regarding the right of access to education, as standardized by the CF of 1988, by Law No. 9394/1996 (BRASIL, 1988; BRAZIL, 1996). Despite the efforts of all education professionals in the school environment, such actions do not meet the main needs alone, since it is necessary to create and implement public policies for digital inclusion for students, among other actions that are silenced and neglected by the State. Not to mention the problems in the dimension of the school space, such as safety and even food, especially for children and young people. More than ever, solidarity technoscience, through Sociotechnical Adequacy, is necessary to rethink new paths to Brazilian educational policy, observing the realities so distinct that they are configured in the territory and enabling new dynamics around community organization, which is present in many places in the face of the crises of capitalism, often building networks of solidarity economy.

¹²Available in: <http://samudex.museudaeducacao.com.br/photos/listall?page=1>. Access on: 05 Mar. 2021

¹³Available in: <http://samudex.museudaeducacao.com.br/photos/listall?page=1>. Access on: 05 Mar. 2021.

METHODOLOGICAL PATH

This chapter is one of the fruits of the discipline “Fundamentals in Science, Technology, and Society - CTS - Habitat, Agroecology, Solidarity Economy and Ecosystem Health”, conceived in a multidisciplinary way and with the objective of forming a transdisciplinary epistemological basis to include university extension in graduate studies through a multi-professional residency project CTS - UnB. Developed in an innovative way, based on didactic procedures that allowed the approach of multiple themes arising from the speech of teachers from different areas of knowledge, the discipline allowed a valuable exchange of diverse knowledge. In its remote modality, due to the conditions of social isolation imposed by the pandemic of covid-19, for the exchange of knowledge, there were no geographical or academic barriers (since it was opened to society in the format of an extension course), which allowed an even greater diversity of realities, cultures, histories and accents present in the course.

This multiplicity and sharing of knowledge, constitutive of the backbone of the discipline, remained in the realization of this chapter. From the Google Docs platform and exchanges through social networks and online meetings, this work, done from multiple perspectives and realities, was built in a Freirian way from a dialogical perspective, present throughout the route. From the theoretical foundation to the following reports, we sought to realize transversality between the experiences and the foundations of Freirean education from the culture of work. A theoretical-methodological sense is embedded into the experiences that follow, reported by some members of the group.

The experiences emerged spontaneously during the conversation circles and encompass, to some extent and intentionally or not, some of the concepts that worked in this chapter. Above all, all these experiences dialogue with a Freirian perspective of learning and the possibility of Sociotechnical Adequacy as a way to build new collective practices, they could be education, social organization, income generation, or the struggle for rights.

Figure 19: Man being literate in the Circle of Culture of Gama, in September 1963. Literacy from the generating words. Source: Museum of Education of the Distrito Federal¹⁴.

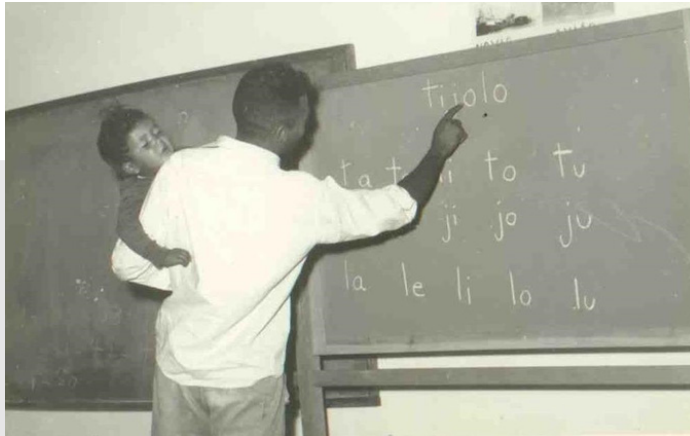


Figure 20: Slide of the training experience in Brasilia. Source: Museum of Education of the Distrito Federal¹⁵.

Figure 21: Paulo Freire, 1st National Literacy Seminar, Monte Mário, Democratic Republic of São Tomé and Príncipe, 1976. Source: BRANDÃO, 2005.



¹⁴Available in: <http://samudex.museudaeducacao.com.br/photos/listall?page=1>. Access on: 05 Mar. 2021.

¹⁵Available in: <http://acervo.paulofreire.org:8080/xmlui/handle/7891/3442>. Access on: 05 Mar. 2021.

EXPERIENCES IN THE TERRITORIES:

Community of Lead - Poconé/Mato Grosso Liberdade, slavery and union at work for emancipation

The community of Nossa Senhora do Chumbo – a district of the municipality of Poconé, one hundred kilometers away from Cuiabá, capital of the state of Mato Grosso – is a community with 126 years of existence, of quilombola origin and in the process of regularization since 2005 (Figure 22).

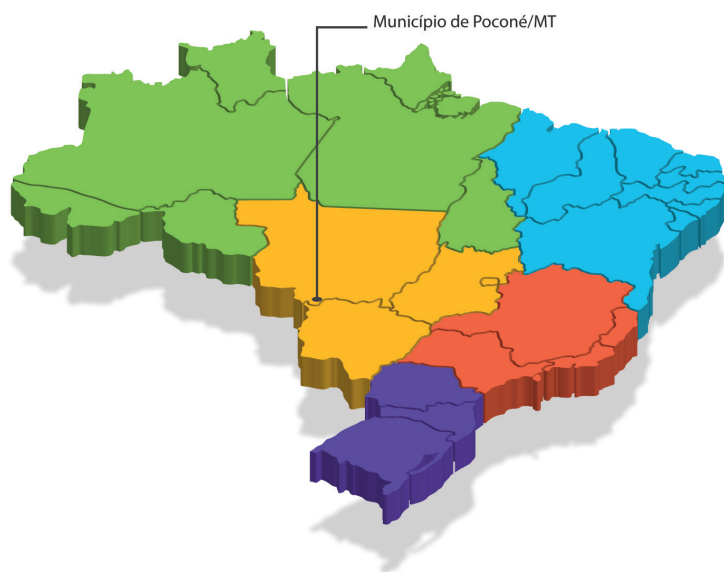


Figure 22: Location Municipality of Poconé/MT.
Preparation: João Lima Farias, 2022

In 1993, a sugar-alcohol plant was installed, a few meters from the community, more specifically on the other side of the road that passes in front of the community, as can be seen in Figure 23.

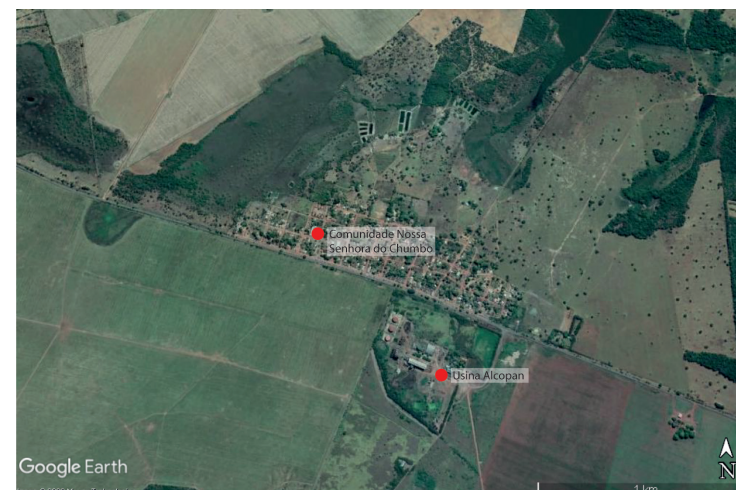


Figure 23: : Community of Nossa Senhora do Chumbo, Municipality of Poconé - MT. Source: Own elaboration from Google Maps image.

The operation of this plant had an important impact on the life of the community, especially in its economic and social organization, as one of its residents explains, which reported that before the incidence of the plant people in the community had larger properties, and their land was more productive and much of them worked on the land for self-sufficiency. It was also mentioned that after the installation and during the intervention of the plant people sold much of their land, learned a new craft based on the provision of services, reduced their self-sustenance production, and began to live with trade and jobs created by the presence of the plant on site. Some people claim that only at the beginning of the plant's operation there was a lot in the community, referring to socioeconomic aspects, which were initially good. But over the years the work became precarious, until the judicial closure of the company.

With the installation of the plant, there was a strong process of migration of people in search of work, mainly from the states of Maranhão, Piauí, Pernambuco and Alagoas. According to the residents, this migratory flow changed the daily life of the community. The agricultural economic activity, predominant in the community, gradually became transformed. A large part of the community's homes, have become converted into trade and shelter for migrant workers, including the substitution of agricultural work for the provision

of services. What initially seemed like a transformation that would generate more income for the community, gradually turned into a complete dependence on the operation of the plant, which, on the other hand, historically proved to feed a process of overexploitation of workers. Informality, delays in wages, debt servitude, and degrading working conditions led to labor supervision rescuing 400 workers in conditions analogous to slavery in 2005. Another rescue was carried out at the same plant seven years later, involving 20 workers living in the community. The plant ended up closing in 2012, after facing several labor lawsuits and refusing to pay workers' rights.

It is in this context that the action of a pilot project called "Integrated Action" begins, which includes the workers rescued from the plant, most of them living in the Lead community, natives and migrants, in a process of professional training for inclusion in the construction works of the World Cup stadium, which would take place between 2011 and 2013. This project, much celebrated by some as an innovative initiative in the socioeconomic reintegration of victims of slave labor, also received criticism from others for being extremely protective, for moving workers close to their families, and for having an individualistic approach to the problem, without palling to the fundamental issue: the vulnerability that the plant brought to the community (Figure 24).

With the support of the International Labor Organization, in 2016 the Integrated Action Project was proposed an approach of community strengthening, not individual, so that the vulnerabilities faced by the Lead community could be overcome. Initially, it was thought that the solution for the community was to bring technologies and methodologies of work organization, because by bringing this new tool to the community, its population could engage in productive activities on of an agroecological and community basis. Here a first question came up, when a preliminary survey of actors who had already worked with the community was made. The main criticism of these actors is due to the fact that the knowledge brought to the community was not used in its entirety and had low effectiveness.

Happy was the meeting of the Integrated Action Project with two organizations that worked directly with community groups, the Pastoral Land Commission (CPT) and the Burnier Faith and Justice Center. A new perspective was born from this encounter. What do people in the community really want? Who are they and what's their story? A first provocation was brought to the project team, quite Freirean: Is it a liberating process being proposed? Should the population itself not be the protagonist of the construction of its autonomy?



Figure 24: Sequence of images of actions in the Lead community. Source: Images provided by the project.

It was from this happy meeting that a new approach was adopted. A group of residents was constituted in the community who, together with the project team, carried out a community diagnosis with the survey of geographical, social, ethnic, and economic aspects, even mapping the production and size of the land of the communities. The planning exercise that followed, conducted with the leadership of the community itself and support of the project, allowed the diagnosis of the existence of a great capacity for the implementation of productive backyards.

The technicians, initially hired to be the "transmitters of knowledge" about agroecology and productive backyards, ended up acting as supporters of true teachers, local producers, "thus creating possibilities for their own production" (FREIRE, 1996, p. 12). The truth is that the population already knew what and how it should be produced, leaving

the project to create the environment for this community union to happen (Figure 25).



Figure 25: Sequence of images of actions in the Lead community. Source: Images provided by the project.

One of the aspects in which the project really collaborated, a fact corroborated by the residents, was the diagnosis that the migratory process had transformed the thought of community unity that people had, characteristic of their quilombola's origin and that this fact caused, of course, conflicts among the residents. With this conclusion, came the idea, organized jointly by the project and the group that led the process in the community, of an initiative of painting houses with paint made of glue and earth. Apparently, such an activity would not contribute to the search for community autonomy, income generation and the prevention of slave labor, but once again mentioning the Freirian thought: no one frees anyone, people free themselves in a community (FREIRE, 1987). The activity consisted of

painting, by the neighbors, a house per week, always finished with a community snack and a discussion about the learnings of the day. Not all were flowers, but the process in fact brought the approximation of the various groups of the community, which led to different social and economic dynamics.

One of the notable results of this whole movement, which still continues, was the increased capacity of the community to come together to ask for their rights to municipal management authorities. These demands resulted in the establishment of a quilombola state school in the district and in actions of the city to improve the distribution of water in the community (Figure 26).

A larger community organization became visible with the ordinary ecological fairs once a week, and which had the participation of the community. The project took place in a rotation form at the fair in the center of Poconé. In this format, the products are delivered by the producers, cataloged and each week a member of the community participates in the fair. The result of sales is divided proportionally between the producers who delivered their products.

The main conclusion of the group that led the Integrated Action project was that no similar initiative should happen without the protagonism of the community. This team learned new techniques and new approaches with the technology that the community already had. The one who taught learned far more than the one who was supposedly "learning."

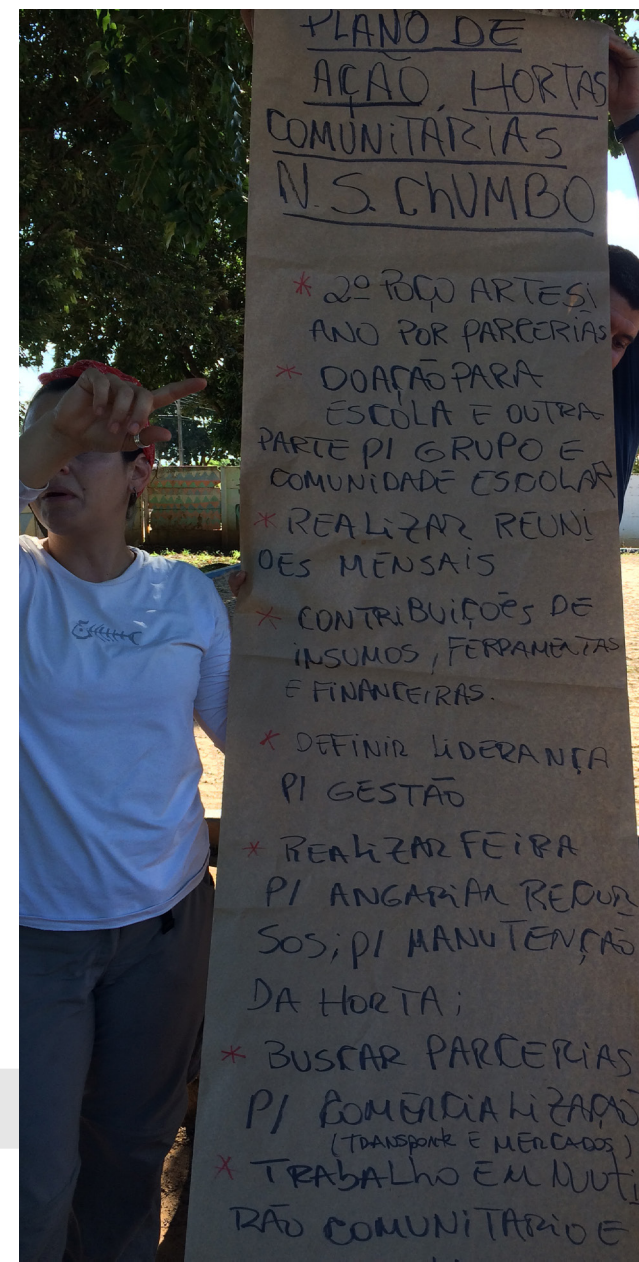


Figure 26: Action in the Lead community. Source: Image provided by the project.

Paths to urban pedagogy: Two Experiences within the Peripheral Group

Maricato (2002) presents “Urban Illiteracy” as a problem to be fought. According to the author, it is necessary to “rescue the theme” of the technical curriculum of urban planners and expand the vocabulary beyond the “hermetic urban” (MARICATO, 2002, p. 4). Urban illiteracy, reported by Maricato in 2002, does not seem to have been overcome, even if they have been created – and currently emptied – previously unpublished channels of democratic participation and management, such as the drafting of the Statute of Cities in 2001 and the creation of the now defunct Ministry of Cities in 2003. The urban issue does not seem to have been appropriated by much of society and in many cases by the municipal administrations themselves. In this same sense, Ámez (2021) points out that, being historically elitist, urbanism can make it even more difficult to understand its dynamics due to the terminologies used by technicians and planners, failing to actually incorporate local participation.

Local dynamics are fundamental in understanding, planning and managing territories. The recognition of the city and the urban area as the space of emancipation from the place implies the knowledge and apprehension of this space, the overcoming of the “space conceived” (LEFEBVRE, 2001) by and to the capital and the fight against urban illiteracy. For this it is necessary to decode the world, the terms, the valorization of local knowledge. A pedagogy of space is necessary, which goes against Freirian’s pedagogy, understanding that “Reading the world precedes the reading of the word” (FREIRE, 1989, p. 9).

The valorization of local knowledge and the search for true learning and a “liberating education” (FREIRE, 1986) are present in the work of the “Peripheral Group”. The Research and Peripheral Extension Group – Emerging Works, from the University of Brasília, has been working with sociotechnical advice in ordinary territories, usually in a situation of conflict for the right to land, involving communities and articulating or brokering associations and collectives existing in the process of architecture and urbanism projects elaboration of: social housing in the countryside and in the city; participatory urbanism (land planning, neighborhood plans, village plans) in urban occupations to contribute to the process of land regularization; urban pedagogy in public schools for young people and children; socio-productive spaces in the field; construction of more sustainable and agroecological scenarios in rural settlements; afro-rural planning for quilombola territories; community and cultural equipment; public spaces and urban parks; cultural circuits; abandoned squares; deteriorated roads; and alleys (Figure 27).



Figure 27: Sequence of records - Peripheral Group. Actions of the peripheral group in the occupations Dorothy Stang (first and second images) and Sister Dulce (third image). Source: Peripheral Group.

The Group treats the teaching-research-extension triad as a continuous movement, through the development of innovations in teaching processes with active methodologies and social inclusion. In this sense, it adopts the development of solidarity technoscience with communities within the scope of projects, through sociotechnical adequacy. An action that seeks to accomplish the “extension with intent”¹⁶ with the solidarity economy as an ally and considering a research agenda with real problems. With an interdisciplinary and transdisciplinary approach in the areas of sustainable development, libertarian education, health promotion, solidarity economy and human rights, it seeks a social construction in order to promote an exchange of knowledge: between researchers/students and the community, and between it and the university to meet the problems and identify local potential.

In summary, the group’s methodology considers the concept of sociotechnical adequacy (AST) in which the subjects of scientific knowledge share their technical codes with the organized social subjects, generating the concept of “pedagogical and sociotechnical interactionism” (NEDER, 2016). The process of the urbanism project is divided into 5 interrelated stages: (i) analysis of the physical and social context with involvement of the local population; (ii) elaboration and systematization of spatial patterns and events based on the information gathered; (iii) participation workshops, mind maps, affective maps and set of patterns; (iv) construction of scenarios, alternative proposals of the preliminary study for decision making; and (v) delivery of the illustrated technical notebook to the population. This is the stage of completion of the work developed. In this notebook, there are pieces of information of the survey, the process, and the project, and this compilation ends up being an important tool of the population in the fight for the guarantee of rights in the territory¹⁷. The big challenge of the group is not to transform this extension activity into a “cultural invasion”, citing Freire (1970, p. 149), but only to bring content that reflects the worldview of those who propose to those who passively receive.

Believing in the practice of liberating education to promote changes in the education of students at the level of professionalization and observing the social function of the profession, one of the axes axis of action has the insertion of the Extension in the Final Undergraduate Works (GFR), held in the final stage of the Architecture and Urbanism course according with Article 7 of Resolution no. 7 of the CNE 2018 on the Guidelines for Extension in Brazilian Higher Education, that advocates student protagonism and community

involvement. Thus, we also seek the transformation not only of the research and extension agenda, but also of the teaching project established at the Faculty of Architecture and Urbanism of UnB.

In this sense, two of the many works developed by undergraduate students within the group stand out here. Both works deal with urban pedagogy and the possibility of the architect and urban planner in the school environment as a way to promote a greater interaction between the city, the school, and the knowledge present in both spaces, taking the school environment as an important place for the process of urban literacy, as a collective construction and political tool in the construction of citizenship. Both studies are based on the method developed by the Peripheral Group, with adaptations necessary at each elementary school level. Seeking to respond to the demand for an understanding of urbanism, also as a tool in “awareness-making”, these works were chosen because they are part of a perspective of the transformation of the educational tripod – teaching, research and extension – by proposing new perspectives of action and training for architecture and urbanism, while exceeding the university environment and establishing a dialogue with basic education in peripheral territories, in an invitation to exchange knowledge. In this perspective, the works carried out by the then FAU undergraduate students, Caroline Soares Nogueira and Natália Maria Machado Côrtes, in 2018, as Final Undergraduate Works, both guided by Professor Liza Maria Souza de Andrade, converge when dealing with the pedagogy of the city from the school space.

Nogueira’s work (2018), entitled “Projeto Rima - Making the City a great learning”, was carried out in a public school in Itapoã, in the Distrito Federal (Figures 28 and 29), with students that were late for the eighth and ninth grades. From the perceptions of public school students about the urban space surrounding the school where they attend, the Architecture and Urbanism undergraduate decoded them into spatial parameters and new scenarios, so that they could benefit from the emergence of learning spaces beyond the school walls. This project was compiled in a physical notebook by the undergraduate, which was presented and exhibited by the participating students, under their supervision, both to the school community at local events, as well as to the university community in conferences and congresses. These shares contributed even more to these young people acquiring a new, more critical, and conscious look at urban space, valuing and demanding improvements (Figure 30).

¹⁶DAGNINO, 2021. As presented by Dagnino in an open class, available at: <https://www.youtube.com/watch?v=YCMOnCyTog0&t=5367s>. Access on: 05 Mar. 2021.

¹⁷For more information visit: <https://www.perifericounb.com/>. Access on: 05 Mar. 2021.

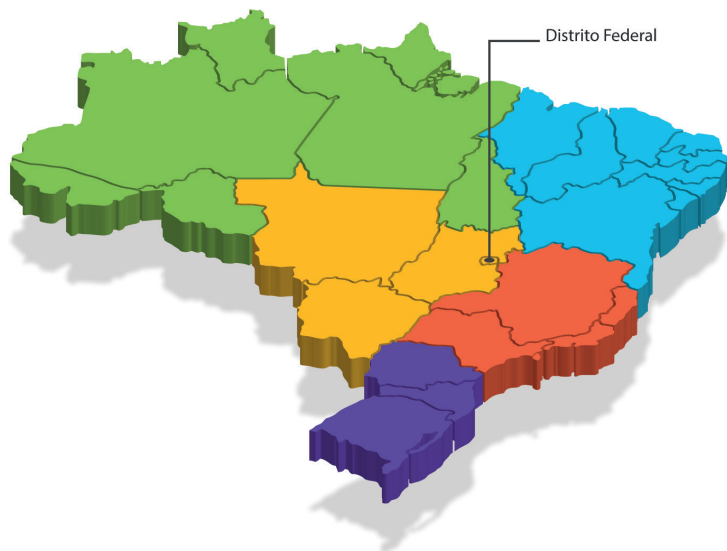


Figure 28: Location Distrito Federal.
Preparation: João Lima Farias, 2022

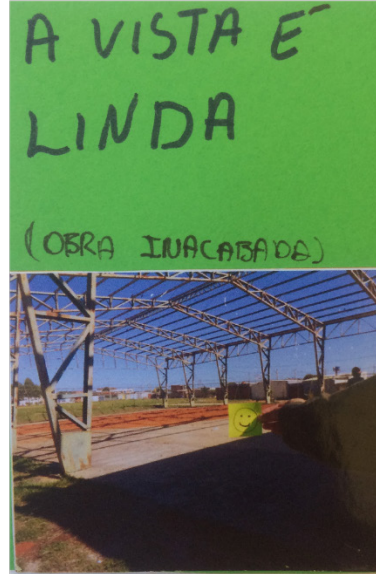


Figure 29: Map - Mestre D'Armas, Planaltina and Itapoã, Located in DF.
Source: Own elaboration from Google Earth image.

Figure 30: Sequence of records of the "Rima Project". Activities carried out during the "Rima Project", in Itapoã-DF. Source: Author's personal collection.

The work of Côrtes (2018) was carried out with classes of the third and fifth years of elementary school I of a school in the Mestre D'Armas Condominium, in Planaltina, in the Distrito Federal (Figures 28 and 29). The name of the place, inspired by a city personality, inspired the name of the project, entitled "Imaginary Master". The experience of the project was dedicated to a movement of rediscovery of the city by children, in order to contribute

can be held in a school space, in associations, institutions, organizations, etc.



Figure 32: Map of Ceilândia - DF. Source: Own elaboration from Google Earth image.

To develop the work of Literacy of Young People, Adults and Elderly Workers (AJAIT), it is necessary to have at least incomplete high school and to do training within the methodology of Paulo Freire. It is necessary a space in which it is possible to accommodate 14 to 25 literacies, since to open a literacy class of the program in the city takes a minimum of 14 people. In the field, this number can be 10 people, with a maximum of 25. If there is more, it is possible, but we understand that a class with more than 30 literacies can compromise the methodology, making it a little more difficult for the literacy to work with the class. AJAIT can be held in a school space, in associations, institutions, organizations, etc.

Respecting the proposal of Paulo Freire, who was the forerunner of this type of teaching in Brazil, AJAIT takes place in a very different way from early childhood education. One cannot use the same methodology used in early childhood education in AJAIT, because these people already have a structure of life and characteristics with specific demands. The biggest difficulty is reading and writing, because most people know mathematical

questions of reasoning. Some are masons, seamstresses, bakers, cleaners, housewives and the elderly, construction workers and people of formal and informal trade. That is why Paulo Freire said that “reading the world precedes the reading of the word” (FREIRE, 1989, p. 9).

These people already come with a reading of the world, with experiences throughout their lives, and Paulo Freire’s proposal is this, to respect this guy who owns his own history. Therefore, AJAIT should be held in a “circle of culture”: literacy students make the circle of culture with the tables and chairs in the space where the classes will take place, respecting the differences of each literacy in relation to skin color, religion, education, and gender. There is a whole form of equality between those who are involved in the circle of culture, that is literacy learners, literacy teachers and observers. In the circle of culture, the spatial disposition allows everyone to look at each other, it is not like in the classrooms of traditional teaching, organized in rows where students are positioned behind each other and the teacher in front, being the holder of knowledge. In Paulo Freire’s methodology and in the Circle of Culture, is a democratic form of teaching, where everyone learns and teaches (Figures 33 and 34).



Figure 33: Example of poster unsuitable for the word generator SCHOOL. Author: Júlia de Oliveira Rodrigues. Source: TÓRRES et al., 2020.



Figure 34: Example of the correct poster for the word generator SCHOOL. Autora: Júlia de Oliveira Rodrigues. Fonte: TÓRRES et al., 2020.

We affirm the EJA as the modality of the Law of Guidelines and Bases of Education of 1996 and affirm the AJAIT as a political position of the Pro-Alfabetization Working Group (GTPA) - EJA/DF Forum, included in the PDE/2015-2024 law. We defend the EJA in the integrated form of Professional and Technological Education (EJA/EPT). Therefore, we consider “the” EJA expression legally inappropriate and politically delayed, because instead of referring to EDUCATION, in its broad sense of human development, it is restricted to teaching.

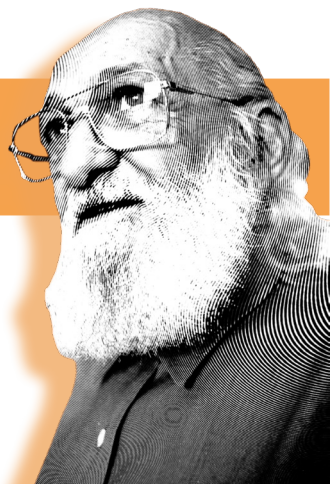
We understand that AJAIT is not inseparable from The EJA:

The Literacy of Young people and working adults will be considered as the beginning of the 1st segment (early years of elementary school), in compliance with the Organic Law in Art. 225 and Transitional Provisions Art. 45. As such, literacy learners will be regularly enrolled with the public call, with the participation of the school community and organized civil society (GTPA-Forum EJA/DF, XXII MEETING OF YOUNG AND ADULT WORKERS OF DF, 2013, p. 10-11 apud RÊSES et al., 2017).

The education of young people, adults and elderly workers is not just about reading and writing, it is actually a liberating practice of education. Respecting the world reading of these literacies, when everyone learns and teaches with their life experiences, the education of young people, adults and elderly workers understands that these people are subjects of the ground they step, owners of their own history. That is why we return to Paulo Freire, who speaks of this historical subject understanding that we only become subjects of our history when we know our own history, and this is only possible when education is not banking and oppressive, but established through a dialogical between literacy teachers and literacy learners.

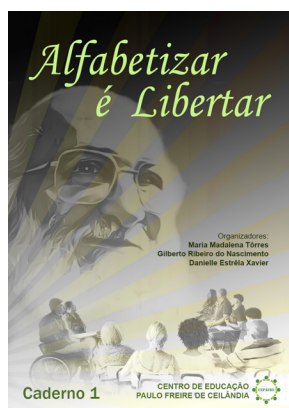
"No one educates anyone, no one educates himself, men educate themselves, mediated by the world."

Paulo Freire (1987)



To learn more:

If you want to know more about how the EJA works, here are two suggestions for you:



Video: A Step To Tomorrow
Available on [You Tube](#)

Literacy Notebook is Liberating.

Link: https://drive.google.com/file/d/1g_dH0fuH6dvgINrlqQG4Obyk3KsJ9xwb/view

CONCLUSIONS

From the elaboration of this chapter, it was possible to highlight the convergence between Freirian thought and solidarity technoscience. Dialogically and collectively, it was possible to conceive the ideas presented here based on the experiences of the authors interacting with the foundations presented in the discipline. Thus, considering the need to build a counter-hegemonic education based on the liberating education proposed by Paulo Freire, new perspectives were launched around shared experiences. It was noticed that the collective experiences presented represent models of solidarity technoscience and true education that comprise the world of work, the context of the subjects and that seek, from active methodologies, social transformation. Based on practices that consider what is experienced by social groups, one can achieve models not focused on a cognitive market policy, but that in an insurgent way meet social demands, allowing social emancipation through an "education for freedom" (FREIRE, 1996).

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