Methodologies for Transductive Strategies



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Abstract The first four sections offer an overview of debates that have taken place in the last 50 years in the social sciences, using extended quotations from different authors. The argument covers texts from May 1968 and Marxisms in dispute, socioanalysis or institutional analysis, constructionist polemics, feminist contributions, and the ecology of knowledges, among others. The last part of the text explains social praxis (built up over the last 30 years) as a confluence that has been created from the contributions mentioned above. This is done not just by applying what has been learned from these approaches but also considering new practical techniques, by which it has been demonstrated how it is possible to take each one of the steps, or "transductive leaps," that we take in networks, processes, and movements.

Keywords Participatory methodologies · Marxisms · Feminisms · Popular pedagogy · Second-order cybernetics · Participatory action research · Socioanalysis · Ecology of knowledges · Transductions · Socialpraxis

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Updated version of the article: "Una articulación metodológica: desde textos del Socio-analisis, I(A)P, F. Praxis, Evelyn F. Keller, Boaventura S. Santos, etc." (*Política y Sociedad*, 2007, Vol. 44 Num. 1: 141-157). In 2007, a monograph on Complexity and Participatory Methodologies was published in the Complutense University journal *Política y Sociedad*, and this included a text that forms the basis of the one presented here in rewritten form. That text in turn took up ideas from the 2006 book *Desbordes Creativos* ("Creative Overflows") which was a detailed presentation of the grounding of what we had experienced and of what today we continue to carry out as "social praxis" (the new methodologies we contribute as part of participatory processes).

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1 Voluntarism and Practical Experimentation (1960s and 1970s)

The debate on participatory methodologies has been going on within the social sciences for years now. The only thing that is new is that now a number of crises have come together, making it more important than ever: the crisis in ecology and in globalized heath, the economic and employment crises, the crises of formal democracies and the reappearance of populisms, but also the crisis of usefulness of the social sciences, and even of participatory methodologies. Forty or 30 years ago, what was dominant was activist movements full of faith in "history" or "participatory (action) research" with a strongly grassroots feel, as a criticism of conventional sociologies, anthropologies, psychologies, etc. Those were years with a strong presence of voluntarism, experimentation, self-criticism, and also some essential contributions that today can be taken up again from the point of view of new paradigms, complexity, social constructionisms, etc.

In 1968, Georges Lapassade made this public declaration after the famous revolt:

... This date, the 22nd of March, 1968, will be celebrated because it constitutes the true beginning of the May Revolution. The event, that 22nd of March, both confirms our theses and destroys them. It confirms them in the sense that the act consisted, that day, for the students of Nanterre, of occupying the central site of the dictatorship of the mandarins, the Boardroom where, around the Dean, all the holders of the Chairs that unlawfully held (and in fact still hold) all the powers in the whole institution met. This admirable initiative, with its magnificent symbolic effect, was the result of a collective invention. It is perhaps not irrelevant to point out that Daniel Cohn-Bendit, who characterized this insurrectional period with his political intelligence, did not want to occupy the administrative 'Tower' of Nanterre and that he rather proposed an occupation of the Sociology Department. However, his comrades in the struggle, with a very firm revolutionary instinct, had understood that they were beyond their teachers, that Nanterre belonged to them. That afternoon, Rene Lourau still considered the absence of Daniel Cohn-Bendit and his friends in the 'institutional analysis group' and later their active and insurgent presence, in 'The Tower' as a simple passage à l'acte with a rejection of analysis. He was wrong. He understood in the days following that the true analysis was the act of occupation. The true effectiveness was the symbolic effectiveness of this intervention in the sacred enclosed sites of university authority. The exemplary act briefly revealed itself as more true than the analysis, and those who changed the world were not the institution's analysts but rather those students of the 22 March, led by activists, who knew Marx, Bakunin, Lenin, and Rosa Luxemburg better than their Sociology lecturers and who, above all, knew how to put them into practice today. Yes, indeed psychology is an agent of cultural repression. The famous seminars are often organizations of social control. It is necessary to be on one's guard against the doctors of the factories, against the psychiatrists, and in general against all those who in our society assume the mission to help others, to listen to them, to understand them, and even to 'heal them.'

Another word about practical experiences with small groups. It is necessary to maintain what the current state of observation teaches us about the problem of groups, the same principle in all experimental psychology that makes some people observed and manipulated in laboratories, objects for other people. Treating a person as an object of research and experimentation is a dangerous path, a dehumanizing one. This has been announced already by the totalitarian projects of domination... So, after May, there is nothing left of the myths of a political psychology that we had been talking about since 1962 (Argument, and the

Royaumont Congress)... Sociology students understood before their lecturers did.... In fact, official sociology (Action, Organizational, or Consensus Sociology) was dead in the Nanterre Sociology Department before the month of May. The events of May have completed its destruction. Nanterre '68: it is simply the end of socio-analysis and the return to the Marx of Praxis.

In parallel with these European seminars, in Latin America, other social scientists such as Orlando Fals Borda (Colombia) and Rodrígues Brandâo (Brazil) disputed the usefulness of the conventional social sciences for peasant movements and, in general, for the construction of the "popular." At that time, participatory action research (PAR) was spreading in what was then known as the Third World, as the implementation of social sciences that were critical of prevailing systems while also being useful for certain marginalized communities. The underlying belief that everything that came from the people had the same value as things that came out of the academy upsets the social sciences around the world. The testimony of the Spanish pioneer in PAR can give us an idea of how its intuitive, homemade approach was received in Europe. Paloma López de Ceballos (1989) saw it in this way:

Then I had the wonderful surprise that this participatory research seemed to have scientific value. London University's London School of Economics and the Sorbonne's École des hautes études offered to officially recognize the books published to replace the degree and the Master's in Cultural Anthropology and/or Sociology. I choose the Sorbonne in Paris for reasons of cultural proximity and I work in the British Museum in the summers in order to benefit from its fascinating documents. After a complementary oral exam on knowledge and aptitudes, carried out by my director of studies, H. Desroche, and his colleagues, the President of the Sorbonne's École des hautes études admits me directly into the second year of a doctorate.

New confirmations arise from the studies: 1. Very much in the French style I discover the importance of the categories of the unheard of and the logical in any investigation. 2. Along these same lines I learn something that I began in Singapore: to dismantle my intuitions and to reconstruct them in logical developments. 3. I familiarize myself with research as a craft production practiced at the highest scientific level. Levi Strauss elaborated his famous mathematical combinations regarding kinship relationship based on bits of paper with people's situations hanging from the ceiling and linked with threads, like a spider's web. Pierre Bourdieu discovered the meanings of Algerian myths by putting the corresponding categories four by four in concentric circles... and research as a craft production is definitively demonstrated by groups of peasants from Pau who research their spontaneous gestures and the secular knowledge that makes their agricultural work possible and they complain bitterly that a group of researchers from the French National Centre for Scientific Research has 'stolen' their discoveries and published them.

The third source of criticism of Western social sciences came from Marxisms. In terms of participatory methodologies, the "Chinese," for example, emphasized the "mass line," that is to say, learning from the experience of the "popular masses" or, to put it another way, the equation of knowledge is practice-consciousness-practice, or matter- consciousness-matter. In the essay "Where Do Correct Ideas Come From" (May 1963) Mao Tse-Tung says:

Man's knowledge makes another leap through the test of practice. This leap is more important than the previous one. For it is this leap alone that can prove the correctness or incorrectness of the first leap in cognition, i.e., of the ideas, theories, policies, plans or measures formulated in the course of reflecting the objective external world. There is no other way of testing truth. Furthermore, the one and only purpose of the proletariat in knowing the world is to change it. Often, correct knowledge can be arrived at only after many repetitions of the process leading from matter to consciousness and then back to matter, that is, leading from practice to knowledge and then back to practice. Such is the Marxist theory of knowledge, the dialectical materialist theory of knowledge. Among our comrades there are many who do not yet understand this theory of knowledge. When asked the sources of their ideas, opinions, policies, methods, plans and conclusions, eloquent speeches and long articles they consider the questions strange and cannot answer. Nor do they comprehend that matter can be transformed into consciousness and consciousness into matter, although such leaps are phenomena of everyday life.

Later on, Adolfo Sánchez Vázquez (1987) took stock of the different Marxisms in a more up-to-date and critical way and unraveling the position of Antonio Gramsci on the "philosophy of praxis":

There are evidently different tendencies within Marxism today. Something that they all have in common is that they appeal to Marx and emphasize -adequately, in a deformed way, or absolutizing it-, some aspect of Marxian thought. There is, firstly, an objectivist, and in a certain way economicist, tendency that goes back to the Marxism of the Second International, continues in the Third and which was finally established in Soviet Marxism of the present day. This tendency absolutizes the objective factors of development, certainly pointed out by Marx, but sacrifices to them the subjective, practical activity. In philosophical terms, this tendency draws on Engels of the Anti-Dühring and Lenin of materialism and empirio-criticism and particularly the Stalinist reification of the universal laws of the dialectic (including the law of the dialectic of nature) of which history would be a specific field for their application. A second tendency, which arises in the 1930s with the publication of Marx's 1844 manuscripts and which influences the 'humanist' interpretations that flourish in the decades of the 50s and 60s and extend to our own times, absolutizes the ideological, humanist component of Marxian thought at the expense of its scientific character and, to a certain extent, of its class, revolutionary content. A third tendency leaves to one side the ontological and anthropological problems of the two previous tendencies and focuses on an epistemological reading of Marx. Marxism is defined, above all, by its 'scientificity' and self-sufficient 'theoretical practice' moves into a central place. The theory is separate from real practice, and the ideological aspect is uncoupled in this way from the scientific aspect. This is the tendency promoted by Althusser and his followers and which, during the 1960s, spread and was influential both in West European and Latin American countries. Although the links between these three tendencies and certain aspects of Marxian thought cannot be denied, by emphasizing respectively the ontological, ideological in a humanist sense, or epistemological problems, they forget or put into the background something that in our judgement is essential: praxis as a theoretical and practical activity, both subjective and objective. It is precisely this that brings to the foreground the tendency that we have called 'philosophy of praxis' and which, in our view, is the one that has its roots most deeply situated in Marxian thought.

2 Socio-analysis and Constructivism (1980s and 1990s)

Two very influential methodologies in our social sciences return to socio-analysis' call to practice as a very explicit background orientation, since they consider that other methodologies are "instruments" or "degenerations" of socio-analysis. However, the truth is that their magnificent investigations never managed to unravel

these participatory methodologies and to construct tools and articulations that respond to these recommendations. The thoughts of Pierre Bourdieu (1980–1991) are:

In short, one has quite simply to bring into scientific work and into the theory of the practices that it seeks to produce, a theory —which cannot be found through theoretical experience alone— of what it is to be native, that is to say, in that relationship of 'learned ignorance' of immediate but unselfconscious understanding which defines the practical relationship to the world... What is at stake is how far the objectifier is willing to be caught up in the work of objectification... But I would probably not have overcome the last obstacles that prevented me from recognizing the forms of thought most characteristic of pre-logical logic in the logic of practice if I had not, somewhat accidentally, encountered this 'primitive' logic in the very heart of the familiar world, in the responses to a public opinion survey by a polling organization in 1975, in which the respondents were asked to associate French political leaders with a variety of objects... It could be seen that in many of its operations, guided by a simple 'sense of the opposite', ordinary thought, like all 'pre-logical' (or practical) thought, proceeds by oppositions, an elementary form of specification that leads it, for example, to give to the same term as many opposites as there are practical relations it can entertain [...] This last example, like the others, is not put forward to exhibit the particular (and very real) difficulties of sociology or the particular merits of the sociologist, but to try to give a practical understanding of the fact that every genuine sociological undertaking is, inseparably, a socio-analysis, and so to help its product to become in turn the means of a socio-analysis.

Jesús Ibáñez (1988) particularly develops the qualitative in his work but aims to articulate the quantitative, the qualitative, and the dialectic (socio-analysis) as a response to the criticism of complexity:

Von Foerster (1960) distinguishes three ways of creating order: from order ---mechanicity- in dynamic systems or systems of organized simplicity; from disorder --regularity- in stochastic systems or systems of non-organized complexity; and from noise—creativity— in linguistic systems or systems of organized complexity... The genotypes of the effect of society (what is done) are the institutions: they are devices for choosing within the law. Each subject is tied by a network that makes a groove in social space-time: a grooved space is the junction of a fixed vertical chain (the chains of organizational structures or affiliations) with a variable horizontal connection (the connections of organizational structures or affiliations). Yet these networks are constantly overwhelmed and transformed, the instituted situations are cracked by instituting movements. It is not possible to analyse an institution out of context: only in-situ institutional analysis (socioanalysis) can account for institutional processes (Lourau, 1970).... If they are carried out well, the survey is etic, phenomenal, quantitative, classical; the group discussion is emic, generative (accounting for the group), qualitative (although the positive content of the quality is lost in the negativity of the differences and similarities between qualities), relativist (the researcher self-analyses their countertransference, but is outside the group); socio-analysis is etic-emic, generative (accounting for the production), qualitative (the positive content of the experienced qualities is recovered), reflexive (the researcher forms part of the group). It can be considered that all social research techniques constitute degenerations of socio-analysis. Socio-analysis contains within it all of the existential context (effect of society) and all of the conventional context (effect of language).

This debate within the sciences in general, and within the social sciences in particular, can be summarized by citing the conversation among E. Fox Keller, Barnett Pearce, and Von Glasersfeld regarding more or less social constructivisms and constructionisms. At this conference, Fox Keller (1994) offered a series of background questions in order to distinguish among various kinds of constructionisms: So the question is opened up, and I would like to invite Professor Von Glaserfeld to explore in that direction: What are the purposes of cognition, of knowledges. Whose are these purposes, how do these purposes become adaptations and for whom are they adapted?

It seems to me that we are leaving out what is beginning to be a quite conspicuous entire dimension of scientific knowledge as intervention in the world. And that the aims, the purposes of modern science have in fact never been purely representational, but have always been an articulated set of interventional aims.

Pearce: "I am going to argue in a moment that we need others for far more than that, but is that a fair characterization of the cognitive interest and the individualistic perspective?"

Von Glasersfeld: "Yes, it wants to talk about knowing and nothing else."

Pearce: "Then that helps me set up a distinction between constructivism and social constructivism ...

What I would like to then do is to suggest that the use of cybernetics might be extended one step further. In addition to knowledge as just looking at the self- regulation of observing one's own cognitive functions —the operatives—, what if it were the case that social settings pre-exist and prefigure the kinds of operations that can go and the kinds of purposes that would be met within them? ...

We all agree first, that language constructs the world, it does not 'represent'. We agree that it is not possible to represent the world as it is before the representation, because language has an effective formative aspect ...

The second characteristic of communication that all those involved in the new paradigm agree on is that the first function of language is the construction of human worlds, not simply the transmission of messages from one place to another. Communication becomes, in this way, a constructive process, not a mere channel of messages or ideas, or a signal indicating the outside world.

The third point of consensus is that communication becomes the primary social process. As Prigogine pointed out, scientists of the new paradigm understand their work as a communication with nature. The social sciences are understood as communication among a group of individuals who call themselves researchers and others who call themselves, or are called, subjects. Conferences like these are considered to be communicative events, and not mere transmission of information...

My fourth point, however, abandons the comfortable domain of consensus: ... within the new paradigm there are two positions on the nature of communication, one focussing on language and the other on activities as a constructive medium.... This (latter) position maintains that we are immersed in social activities, that language is in our worlds but it is not their parameter... More precisely, it is a 'part' in the sense that it impregnates totality, but it does not coincide with that totality; it is not the totality. I call this approach social constructionism. It is based on the North American pragmatists, particularly William James, John Dewey and George Herbert Mead. It also rests on the work of Wittgenstein's late period, particularly on his emphasis on language games and his emphasis on the idea that rules are not different from the activity itself. The third basis for social constructionism is Systems Theory. Systems Theory includes Gregory Bateson, with his marvellous ability to think about systems ____."

Tomás Ibáñez (2003) more recently has reminded us that in social constructionisms it is also necessary to carry out certain self-criticisms that indicate the absence of the "non-discursive" (body, institutions, technologies, etc.) as well as the practices and policies that arise from this social task:

The truth is that there is no lack of arguments for considering, in an eminently critical way, the current limitations of social constructionism, and I would like to highlight, in this regard, two lines of argument.

The first is related to the emphasis that social constructionism placed on the unquestionable importance of language, and on the discursive nature of certain entities and of certain psychological phenomena that it would be convenient to denaturalize, de-essentialize, and to tear out of the supposed 'interiority' of the individual. Although some of the social constructionist formulations can reveal themselves to be vulnerable to the accusation of falling into a certain linguistic idealism, I do not think that this can be generalized to most constructionist analyses, or that it constitutes an important problem. The problem lies, rather, in that that necessary attention paid to the sphere of discursiveness has not been accompanied by an equal interest in the field, and it is a very broad field, of non-discursive practices. What has been left to one side are the objects that exercise their effects through means that are essentially non-linguistic, such as the body, certain technologies or social structures and institutions themselves.

The second line of argument is related to the incapacity, or perhaps with the resistances, of social constructionism to extract the explicitly political consequences of its own suppositions, and to develop an intervention at the theoretical level and at the level of practices, so that these are in harmony with the unbearable nature of the conditions of existence that our model of society imposes on the immense majority of humans and with the unavoidable urgency of building a different world.

3 New Feminist Approaches (1990s and 2000s)

"The postulate of value free research, of neutrality and indifference towards the research objects, has to be replaced by conscious partiality, which is achieved through partial identification with the research objects.

- 1. The vertical relationship between researcher and research objects, the view from above, must be replaced by the view from below in order to apply a scientific and an ethical-political dimension.
- 2. The contemplative, uninvolved spectator knowledge must be replaced by active participation in actions, movements and struggles in favour of the conditions of life of women and men.
- 3. Participation in social actions and struggles, and the integration of research into these processes, further implies that the change of the status quo becomes the starting point for a scientific quest. The motto for this approach could be: 'If you want to know a thing, you must change it.'
- 4. The research process must become a process of conscientization, both for the so-called research subjects and for the research objects, that is to say, research should be inspired by the conditions of oppression to offer sufficient tools to the research objects for them to improve their quality of life.
- 5. In short, it should be accompanied by the study of their individual and social history in order to analyse, rigorously, their situation of marginality and oppression." (Mies and Shiva, 1993: 59–83)

Among all the social movements, Evelyn Fox Keller highlights the influence of the considerations of the feminist political impulse on her scientific work. For this reason (and by way of example) we take up these movements' criticisms of the violence of science and their contributions to "creative power":

Personally I am in debt to feminist theory... Feminist theory is an intellectual undertaking that arose from a political impulse. The goal of the political impulse was to question gender demarcations and their constrictions, as a system in the discourse. And this political impulse led to an intellectual programme whose objective is to understand how gender works. ...

The aim of feminist theory is, then, to analyse and deconstruct the symbolic work of gender in the social, cognitive and political spheres. Feminist theory has been a magnifying glass that identified, that looked at the world with the aim of seeing where gender demarcations were, or where gender operated, in order to subvert it. And this work became a method that has sometimes been described with the following slogan: 'The political is personal and the personal is political'. I systematically sought to identify, to reveal the 'personal elements of the political' and the 'political elements of the personal', the silent, hidden subjective dimension of the objective; the rational dimension of the emotional and the emotional dimensions of the rational.

María Mires (1993) condemned the violence of science, its definitions and separations between the theoretical and the practical, in order to appeal to "subject-subject reciprocity" in a new science:

For specialists in bioethics, the problem set by genetic and reproductive technology is only a matter of definitions. The violence of the scientific lies mainly in power to define. Direct violence has been transformed into structural violence, apparently clean and pure...

The same arbitrary logic of 'divide and rule' is applied in everything regarding the distinction between basic research and applied research, or application of the results of the research. The essential or basic research is not, in moral terms, either better or purer than applied research, if in the basic research it is permitted to violate all taboos, ignore all moral principles that apply in a society, and this is also the case with the application of the results of that research. There is no other way out: according to the paradigm of the new patriarchies: what can be done, will be done ...

The taboo that is never mentioned on ethics committees is the profoundly immoral partnership between science and force, science and militarism, science and the patriarchy ...

Scientists should never do to other creatures what they would never do to themselves ...

In a new science what should occupy a central place is the principle of subject-subject reciprocity. The would presuppose that the object of study is once again considered to be a living being with its own dignity/soul/subjectivity. A new science should never forget the fact that we also are a part of nature, that we have a body, that we depend on Mother Earth, that we are born of a woman, and that we die...

It is a promising sign that the radical criticism of science, which originated among feminists and which is still being developed by them, has meanwhile induced some men to start to also reflect on themselves, and also on the patriarchal image of the White Man, the culture hero of Western civilization, and above all on the natural scientist, who, in collaboration with masculine complicity in the military sphere, in politics and in economics, has made us suffer so many wars and catastrophes...

Vandana Shiva (1995) gives this level of "higher-order cognition" to the point of view of the subject-subject relationship because it is more inclusive, because we are all trapped in the same dialectic:

One cannot really distinguish the masculine from the feminine, person from nature, Purusha from Prakriti. Though distinct, they remain inseparable in dialectical unity, as two aspects of one being.

The recovery of the feminine principle is thus associated with the non-patriarchal, nongendered category of creative non-violence, or 'creative power in peaceful form', as Tagore stated in his prayer to the tree.

The recovery of the feminine principle is a response to multiple dominations and deprivations not just of women, but also of nature and non-western cultures. It stands for ecological recovery and nature's liberation, for women's liberation and for the liberation of men who, in dominating nature and women, have sacrificed their own human-ness. Ashis Nandy says, one must choose the slave's standpoint not only because the slave is oppressed but also because he represents a higher-order cognition which perforce includes the master as a human, whereas the master's cognition has to exclude the slave except as a 'thing'. Liberation must therefore begin from the colonised and end with the coloniser. As Gandhi was to so clearly formulate through his own life, freedom is indivisible, not only in the popular sense that the oppressed of the world are one, but also in the unpopular sense that the oppressor, too, is caught in the culture of oppression.

4 Action Research and Ecology of Knowledges (2000–)

Of all the things put forward by Boaventura S. Santos, it is important to emphasize his arguments to the new Brazilian Minister of Education, Tarso Genro, in 2004. He underlined "action research" and "community research" but above all the "ecology of knowledges" and "science shops" to combat "cognitive injustice":

Action research and the ecology of knowledges are areas of university legitimation that transcend extension activities since they act both at the level of extension and at the level of research and training. Action research consists of the participative definition and execution of research projects involving popular social organizations and communities grappling with problems whose solution can benefit from the results of the research. The social interests are tied to the scientific interests of the researchers and so the production of scientific knowledge is directly linked to the satisfaction of the needs of social groups lacking the resources to have access to specialized technical knowledge through the market. Action research, which is not specific to the social sciences, has not generally been a priority for universities. However, it has a long tradition in Latin America, although it was stronger in the 1960s and 70s. Just as with extension activities, the new centrality of action research is due to the fact that the neoliberal transnationalization of higher education is transforming the university into a global institution of action research at the service of global capitalism. Here too, the battle against this functionalism is only made possible by constructing a social alternative that focuses on the university's social utility and defines it in a counterhegemonic way.

The ecology of knowledges is a more in-depth form of action research. It involves an epistemological revolution in the heart of the university, and therefore cannot be legislated for. The reform should hardly create institutional spaces that facilitate and incentivize it occurrence. The ecology of knowledges is a kind of counter-extension or extension in reverse, that is from outside to inside the university. It consists of the promotion of dialogues between scientific and humanistic knowledge produced by the university, on the one side, and the lay, popular, traditional, urban, peasant, provincial and non-Western (indigenous, African, etc.) knowledges, on the other. Along with the technological euphoria, there is also today a lack of epistemological confidence in science that derives from the growing

visibility of the perverse consequences of some kinds of scientific progress and the fact that many of modern science's social premises have not been fulfilled. It is beginning to be socially perceptible that the university, by specialising in scientific knowledge and considering it the only kind of valid knowledge, has actively contributed to the disqualification and destruction of much potentially invaluable non-scientific knowledge, thus causing the marginalization of social groups to whom these kinds of knowledge were the only ones available. So social injustice contains cognitive injustice at its core. This is particularly obvious on the global scale, where peripheral countries, rich in non-scientific wisdom but poor in scientific knowledge, have seen that latter, in the form of economic science, destroy their ways of sociability, their economies, their indigenous and rural communities, and their environments.¹

In very different ways, something similar happens in the central countries where the negative environmental and social impacts of scientific development are beginning to be included in public deliberation, pressing for scientific knowledge to confront other knowledges, of a lay or philosophical kind, common sense, and even religious knowledges. Some of the processes of promoting critical active citizenship pass through this confrontation.

The ecology of knowledges is sets of practices that promote a new, active bringing together of knowledges with the goal that all of them, including scientific knowledge, can become enriched by the dialogue. It involves a wide range of actions of evaluation, both of scientific knowledge and of other practical knowledges considered to be useful, shared by researchers, students and groups of citizens, serving as a basis for the creation of wider epistemic communicates that convert the university into a public space of inter-knowledge where citizens and social groups can intervene without being exclusively learners.

Action research and the ecology of knowledges are situated within the search for a joint reorientation of the university-society relationship. This is the case with 'science shops'. Based on the experiences of action research and the activism of scientists and students in the 1970s, science shops were created and they became a movement with significant dynamism in various European countries. After a period of relative decline, the movement is enjoying a resurgence today in Europe with the support of the European Commission, and also in other parts of the world. In the United States there is a movement that is close, although with certain other characteristics, which is 'community-based research'. This movement, which is now organized internationally into the 'living knowledge' network, seeks to create a public space of knowledges where the university can confront cognitive injustice through the joint orientation of its functions.

Science shops are a hybrid in which action research and the ecology of knowledges are combined. A science shop is a unit that can be connected with a university and within it to a department or a specific organic unit, which responds to requests by citizens or groups of citizens, by associations or civic movements, or tertiary sector organizations, and in certain cases, private sector companies, to carry out projects that are clearly of public interest (identification and proposals for the solution of social or environmental problems, or problems in the field of employment, public health, energy, etc., constitution of organizations and associations of social community interest, promotion of public deliberation, etc.).

The request is studied jointly through participative procedures in which all interested parties, as well as those who run the science shop, take part.

¹The reciprocal link between social justice and cognitive injustice was to be one of the ideas that would be most resisted within the university, precisely because historically it was the great agent of the epistemicide committed against local, lay, indigenous, popular knowledges in the name of modern science. In Brazil, the resistance has been perhaps even greater since the university-educated elite was easily attracted to the self-congratulatory idea of the new country, a country without history, as if in Brazil there were only descendants of European immigrants from the nineteenth and twentieth centuries and not indigenous ancestral peoples and descendants of slaves.

Those in charge of the shop contact departments or specialists at the university and ultimately within the inter-university network of science shops to find people interested in taking part in the specific project. Then a team is created that includes all interested parties, which designs the project and the participatory methodology for intervention.² At universities in some countries (Denmark, for example) science shops are integrated into the curricular activities of different courses. Training seminars are offered so that students who wish to do so can relate with the results of that participation. The same happens when doing a postgraduate thesis, which can consist of a project that responds to a science shop request.

Science shops are an interesting experience of the democratization of science and of a move towards solidarity in university activity. Despite the fact that some universities — under pressure to seek income on the market— have become involved by transforming themselves into units for rendering services for payment, a model dedicated to social solidarity has a strong potential to create niches of civic and social care when educating students, and in the university's relationship with society, and to work as incubators of social interest and active citizenship.³

Science shops, among other examples, show how the university as a public institution can take on a social aspect when educating students and in research and extension activities. Apart from science shops, other activities carried out seek to contextualize scientific knowledge. They have in common the reconceptualization of the processes and priorities of research based on users and the transformation of these users into co-producers of knowledge. See, for example, the contribution of AIDS sufferers to clinical tests and the contribution of this approach in the research agenda for treating the disease in Brazil and South Africa.

5 Social Praxis Confluence (1990s to 2011, and After)

Apart from these very interesting contributions cited above, we in the CIMAS and the Sentipensante networks work to move forward with these methodologies based on the practical paths that we are traveling together with the movements, cooperatives, municipalities, etc. that we work with. We are learning with the experiences of Mexico, Honduras, Colombia, Ecuador, Peru, Chile, Uruguay, Brazil, the Canary Islands, Andalusia, Madrid, the Basque Country, and Catalonia. In each place there are teams that are carrying out work of the social praxis kind. The methodological reference points taken have been in some cases Paulo Freire and "popular pedagogies"; in others the PAR of Fals Borda; or militant co-research; or PRAs, "participatory rural appraisals"; or the contributions of feminisms, etc. Above all, it is based on the *indignados* mobilizations of 2011 that these methodologies have become more widespread.

Here we present a confluence based on these approaches, their differences, and their most creative elements, so that each group can choose and create their own combination and not remain limited to just one of the contributions. Of course, this

²Participation is only genuine to the extent that it effectively conditions results, means, and methods to get there. Under the name of participation, and other similar names, including consultation, North-South "aid" projects are carried out which are clearly neo-colonial in nature.

³An analysis of the science shops can be read in a study by Wachelder (2003).

is just one of the possibilities, and this is not proposed as anything other than one reference point in debate with others. However, the aim is also to show that there are possibilities to perform "creative leaps" based on some practical movements and on reflection upon certain theoretical contributions.

The table shows the epistemologies and methodologies that have proved fertile to us in the order in which we have applied them. The columns show those fields where they are principally applied, from the most "micro" personal and group situations, to the community, to the most "macro" situation – that of a society. We have also tried to offer visibility to a set of woman writers and not just to the men with the most impressive reputations. Furthermore, we have tried to mingle some contributions from the natural sciences with those from the social sciences, socialist contributions with libertarian contributions, grassroots proposals with the most erudite ones, etc. The 15 positions of reference have different degrees of specificity, because this is how they reached us and how we made use of them. What is presented is a table that can act both to distinguish them and to combine them. In this way anyone can build their own schema of reference, including other scientific, activist or artistic traditions, with more local authors, etc.

Distinctions and confluences, among practical and theoretical approaches received in recent decades, for the construction of social praxis, with respect to different waves or fields of involvement

		Medium wave:	
	Short wave: groups	communities	Long wave: society
Fields→	Sociopolitical	Leaps with "self-eco-	Strategies based on
↓ Stages	"transductive" ethics	organized" groups	"emerging praxis"
Practical	Beyond the	Beyond "subject-object	Beyond "seeing,
overflows of the	"established	distances,"	judging, and acting,"
academies	analysts,",	Subject-Subject	Action-Reflection-
	Situational and	Strategies,	Action Involvement,
	Instituting	of Participatory (Action)	of Praxis Philosophies
	Analyzers,	Research, militant	(R. Luxemburg,
	Institutional Socio-	research, etc.	H. Lefebvre,
	Analysis (G. Debord,	(K. Lewin, O. Fals	P. González Casanova,
	J. Jacobs, D. Haraway,	Borda, C. R. Brandao,	M. Barnet Pearce,
	F. Guatari, R. Lourau,	M. Montero, S. Rivera,	E. Fox Keller,
	etc.)	Colectivo IOE, O. Jara,	J. Riechmann, etc.)
	Drifts, socio-dramas,	etc.)	Situated and
	timelines, etc.	Participatory	transformative
		workshops and	processes and
		meetings including all	mobilizations
		those involved	

Fields→ ↓ Stages	Short wave: groups Sociopolitical "transductive" ethics	Medium wave: communities Leaps with "self-eco- organized" groups	Long wave: society Strategies based on "emerging praxis"
Leaps through complexity and emergent systems	Beyond "model laws and ethics," Collaborative and Transductive Approaches, of the Paradigm of Emerging Systems (H. Von Foerster, H. Maturana, F. Varela, R. Braidotti, F. Capra, G. Simondon, J. Ibáñez, etc.) Initial self-reflection, negotiated by different groups	Beyond organizational charts and "power structures," Strategies with Action Groups , Network Analysis, and "creative relationships" in "networks and figurations" (N. Elias, E. Bott, P. Freire, L. Lomnitz, M. Granovetter, etc.) Strategic mappings of actors (schemas with 4 variables)	Beyond "simplifying the determinist dialectic," Making Paradoxes and Tetralemmas, from Pragmatics and Conflict Theory, with Eastern dialectics (Bakhtin, J. Galtung, F. Jameson, R. Reguillo, G. Abril, etc.) Multilemmas for workshops with "social creativity"
Construction of collective schemas	Beyond "Oedipal family triangles," Open Processes and Operative Groups , through ECRO (operative groups), schizoanalysis and ROCE (E. Pichón-Rivière, J. Kristeva, F. Guattari, M. Sorin, A. Lans, etc.) Operative groups and "care motor groups"	Beyond "developmentalist indicators," Sustainability with Integrated Resources, with Participatory Rural Appraisal (PRA) based on agroecology (R. Chambers, V. Shiva, A. Acosta, M. Ardón, Y. Herrero, etc.) Visualization of resources and transitions to "good living together"	Beyond "linear, cause-and-effect determinisms," Satisfactors and the Solidarity Economy, with Situational Strategic Planning (H. Henderson, Max Neef, C. Matus, J. L. Coraggio, C. Carrasco, A. Pérez Orozco, etc.) Flow diagrams and priority for "life in the center"
Twentieth- century movements	Opposed to "dominant value equivalents" Reversions with Popular Overflows, With the Action- training of Pedagogía Comunicación Popular (C. Núñez, J. Matos Mar, D. Juliano, J. Martín Barbero, etc.) Spaces for creativity with action-training	Opposed to "patriarchal styles" and "Cainite sectarianisms," Inclusive Movements from Daily Life, with eco-feminisms and indigenous movements (Mov. Sin Tierra, Mov. Chipko, Chiapas, etc.) Self-eco-organization with workshops and meetings with care	Opposed to "exploitation and neo-colonization" Horizontal Force Ideas linking up with workers' and decolonizing fronts (F. Fanon, A. Davis, A. Escobar, S. Federicci, B. S. Santos, etc.) Integrated and inclusive participatory strategies

		Medium wave:	
	Short wave: groups	communities	Long wave: society
Fields→	Sociopolitical	Leaps with "self-eco-	Strategies based on
↓ Stages	"transductive" ethics	organized" groups	"emerging praxis"
Contemporary	Opposed to media	Opposed to "democracies	Opposed to the
movements	"post-truths" and their	of minorities" and "low	"dictatorship of
	viral circulation,	intensity democracy,"	economization and
	Demonstrations of	Democracies with	global speculation"
	"Good Living	Grassroots Initiatives	Inclusive Mobilization
	Together" with	with Core Groups	(from the World Social
	Sustainability	(I. Thomas, Kerala,	Forum to municipal
	(Transition towns,	H. Wainwright,	movements, Latin
	Integrated	M. Harnecker, pro-	American movements,
	Cooperatives, Good	commons protest-	indignados
	Living/Liveability,	proposal movements, Ch.	mobilizations,
	A. Roy, R. Zibechi,	Laval, P. Dardot, etc.)	R. Gutiérrez A, etc.)
	etc.)	Deliberative workshops,	Monitoring with
	Smart groups for	task groups, and	different overflowing
	working enjoyably	democratic circuits	resistances
	based on co-labor		
	action		

Source: re-elaborated based on T. R. Villasante, 2006

The first distinction is in giving priority to the "situational and instituting analyzers" as opposed to instituted academic analysts. The "analyzer" is an act, an event, that usually offers us more complexity and reality than any "analyst" with their academic texts. The priority is to depart from or create "situations" that provoke more profound analysis, which show what is instituted and what is institutional in any group or situation. The instituting processes can be of different degrees, and they are always in dialogical contrast to the instituted, but it is by situating ourselves in these processes, and not attempting to define them academically, that we can advance both in transforming the reality and in understanding it. Distinguishing and giving more importance to the "analyzing facts" than to the analysts' texts does not mean that we should not read and debate but rather that we should carry out theoretical practice based on establishing ourselves in a certain instituting situation as a reference point for any reflection.

We also establish distinctions between those who put distance between the subject and the object of research or of a social process. Researchers cannot be full subjects without conditioning factors, and those being investigated cannot be mere objects to be observed. People and groups have their own strategies when faced with those who ask them, and they know how to analyze why these people are interested in each individual or social conversation. We are guided by emotions and by subcultures, both those that say they are carrying out a process and those who feel carried along with it. Countering the subject-object relationship (which is said to be "scientifically objective"), there are always personal and group subject-subject strategies that are in conflict in the construction of actions and explanations that interest each

party. Investigations are always "participatory" actions, whether this is recognized or not. Both in a survey and in a discussion group, whoever is more passive may want to deceive, depending on how that person receives the questions put or depending on how the researcher is dressed or talks.

The third practical overflow that we experienced years ago was the importance of "involvement" for any knowledge. In the first place because you are always involved, and if you are not aware of this, then so much the worse, because you do not have any control over where you are. You cannot "see or judge" from outside of the society, because we are part of the society. However, we cannot remain paralyzed because of this lack of distance that we are submerged in, either. Anything we do, or do not do, also involves us practically, and for this reason, reflection is always in between two actions. Carrying out this reflection, aware of these processes of involvement, is what we call "praxis." This is related to the traditions of the activist movements, of being aware that "passion does not take away knowledge," rather that it takes it away from those who do not know what they are involved in and do not put a minimum of distance between themselves and their conditioning factors. If I understand the Marxist heritage, for example, I am in a position to distance myself from errors that have historically been committed involving different and real experiences, but if we do not know which leg is lame, it is more difficult to prevent such errors.

Later came the leaps to the "complexity" of things and of relationships. As against the position of aiming to find the "law that explains everything" or the "exemplary ethic" to be followed, it seems to us more modest and realistic that we accept the "paradigms of complexity." The laws of universal gravitation or of natural selection have their specific applications in which they are observed, but there are other spheres where they require other, more complex logics. The logic of the markets, or of human rights, are not as simple as just enunciating a law, since motivations in different human cultures vary substantially, as do cooperative styles. In the natural sciences, the symbiotic and the synergic appear as much or more than the competitive, and their conjugation allows approaches that permit "transductive" leaps, that is to say, leaps from some energies to others, both to see with our eyes by means of connections between light and neurons and to grow a plant through the actions of enzymes. Transductive styles, which act to accustom us to leap, are also present in social relations and can be learned with these participatory methodologies.

Analyses of power have frequently been very simplistic, and this might also be said about some of the "social network analyses." Instead of trying to locate power in a place, institution, or person, the possibility exists of establishing it as a set of relationships or strategies. The different positions are thus shown according to the kind and intensity of links that are established in each case. It is what is commonly called "sets of actions" (such as the "networks and figurations" of N. Elias, 1994) for specifying, in daily life, the determining factors of class or ideologies in play in each situation. Relations that are built up between trust and distrust between the different positions, between fears and gratitude, but not from a point of view of individual psychology but rather from the collective and participatory confirmation

of the "specific analysis of each specific situation." In this way, the "strategic maps" of relationships (P. Freire, 2008) allow us to understand the strategies that are confronted or are set up at each moment, for their historically constructed economic, social, or even emotional interests.

We have performed the third leap toward complexity by working with the paradoxical expressions of the subjects involved in the processes. People's words and gestures do not indicate to us unique and distinct positions, and neither is it clear that everything is reduced to a dialectic of two opposing themes. There are also intermediate positions, and there are also positions that are both one and the other at the same time, and even positions that are completely apart, neither one nor the other. Linguistic analyses have gone beyond dilemmas and consider "tetralemmas" or double dilemmas that we all use daily even though we do not realize it. For pragmatic criticism, a "semantic" regarding the nature of expressions is not enough, instead seeing that they involve the forms of communication, the gestures in their contexts, in practical, situational relationships. With J. Galtung (2004) we enter into "pentalemmas." These kinds of considerations open us up to greater depth and to new alternatives. Not only that the winner may be one program, or the other, or the intermediate, but that they can both be negated, opening up new paths and solutions, even that they put into play strategies that can add up those which are apparently contrary.

This is what we construct collaboratively through "multilemmas." This consists of moving from the surface of the first dilemmas to the depths of what we can build beyond first impressions. "Social creativity" appears as a collective construction that is concerned with finding a way out of the prison of dilemmas, in workshops, meetings, and practices, which can be enjoyed with other people and groups, which take the opportunity to feel the emotions and thoughts that can make us live better. It does not set the private interest against the general one but rather builds both, articulating them in its most novel expressions.

From the 1990s onward, we have been building certain new collective schemas. We think through schemas, and often these enclose us in "endogamic" process that hardly let us out of what the group of reference debates. If we do not see more, it is because we are not educated to see more than what fits into what we previously have wanted to see, in order to maintain a "security" that we have been educated in. However, based on cognitive theories ("enaction") from the social psychology of the "link" or ECRO (from the Spanish initials for "operative and relational conceptual schemas), etc., it cannot be imagined that just anyone can resolve their problems merely through introspection or through exercises in taking notice. The idea with "operative groups" is to open up processes of communal involvement, which undertake associated and situational practices – "operative relations acting on conceptual schemas" (ROCE) (Villasante, 2014).

We use diverse techniques and methodologies that have allowed us to realize very abstract concepts that are sometimes lost in meaningless verbiage. For example, the "sustainability" of processes might mean almost anything according to who interprets it. Even if we take some "dominant indicators" of our statistics, in order to specify what we are referring to, we can choose in such a way that we are always right, if we do it cleverly enough. However, some peasant movements have taught us that the PRA is a practical form that is a much more reliable and functional way to build sustainability. For example, "agroecology" uses the "integrated resources" that each community has available and can demonstrate that there are ecological and economic forms for "living better" based on these participatory methodologies.

Sustainability is not justified by certain macro-economic figures, which some experts might offer us, but rather by the criteria and indicators that demonstrate "quality of life" for each community at any given time, thus setting the pace of their way of life. In the conventional analyses of "strategic planning," "cause-and-effect" processes appear that are used as a basis for predicting the success of what is being designed by recognized experts. However, what happens in real life is very different, given that the credentials or criteria required for giving opinions are usually very restricted and very biased according to the interests of those who give the orders. Furthermore, there are usually unforeseen circumstances that do not fit with what those who have intervened say, based on their presuppositions.

As against interested "determinisms" it is better to accept "recursive coincidences," determining factors that overlap, which are not so linear and which are more participative, making it possible to improvise, rectify and monitor processes based on people's own interests. "Endogenous development" must always take into consideration changing external circumstances and even the "unwanted effects" of policies that are underway. We start from what is put forward by "situational strategic planning" (SSP) and we have "satisfactors" as a horizon. These factors are set up publicly and are important elements that "put life in the center," as feminist and other movements demand. That is to say, they create efficient social economy policies, for and with people.

Some alternative movements of the twentieth and twenty-first centuries offer steps to follow with these liberatory forms. Rather than the "dominant values" that aim to define, from the "scientific community" what is good and what is bad, we are always more interested in movements about "learning in order to transform, and transforming in order to learn" (Nuñez, 1989), etc. - movements that "undo" and overflow initial considerations because their creativity does not allow them to be foreseeable, or to be subjected to any preset program. It is not that "reversion" or "undoing" goes explicitly against what has been instituted but that by being more consistent with formal declarations than the authorities themselves; it overflows them and puts into practice what others say and do not do. It is in these practices where we all learn from what escapes our control, from the great complexity of life and of emerging processes. For this reason the first indicator will be that all groups and people can learn from the creative innovations that we are constructing, and that is why it is not possible to follow preset molds or channels. "Patriarchal styles" are at the heart of the hierarchized and authoritarian forms that are blocking the emergence of human creativity. It is also about leaving behind sectarianisms that are too ideological, since the aim is to enjoy more the journey together than the writing of programs, which we do not know whether they will be carried out.

We have to be able to make the most of the initiatives that arise constantly from the relationships among people, since it is from the constructive energy of groups and of people that we can make "participatory democracies." Not only democracies so that the majority of those who vote feel represented but also so that groups who self-organize in daily life see that their initiatives can contribute to improving their lives. Certain "self (eco)-organized" democracies are ones that, like ecosystems, make use of the contributions of the creatures, large and small, that they are composed of. The ecological self-organization of systems of relationships, among all their components, is a very good model, as against what is involved in the delegation of bureaucratized electoral systems. Many women's movements around the world are teaching us to work with democratic styles, starting with daily life, from the smallest, and how to transform the world from the micro to the macro. Workers' movements and those striving for decolonization are also important models, and they have constructed force ideas that are horizontal, inclusive, and transformational. Not just dilemmas within the system, but much more: the construction of other, emerging plans, where force ideas can be constructed in a participatory way; these force ideas would be able to mobilize and to coordinate, contributing comprehensiveness to processes.

In order to complete the table, we participate with the current "alter-globalization" movements, which have very different meanings and goals, that offer the construction of "emerging" potentialities as opposed to the dominant values. As against "post-truths" and stories that are used to create fears, the securities of specific experiences of "good living together," which are now becoming movements, are offered. Also, "grassroots democracies" and inclusive social mobilizations against the dictatorships of "financialized globalization."

We do not know what alternatives have a future, but we build because "other worlds are possible" based on the radical criticism of the circulation of capital, patriarchal hierarchy, and unquestioned dogmas. We propose "transducing" the "cries" of parts of the world in order to learn to "build paths" that are emerging after the downfall of the "empire." That there be a plurality of "reversive overflows," rehearsing different ways of starting out on diverse "emerging" pathways, as against what has been called "dominant value equivalents." This is something that encourages us both in the everyday and in the direction of global transformation.

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