Technology, democracy and participated knowledge

Tecnologia, democrazia e conoscenza partecipata

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ABSTRACT
In the recognition of the semantics of innovation and the technological means of the contemporary world, this text intends to analyze some effects of the technological-political regulations (of the capitalist model) in the building of science and the growing relevance of the knowledge economy, as well as assess the challenges of new practices of knowledge production towards the democratization of knowledge.
Given a «cyber-imperial» model of technological praxis that involves the desire to appropriate individuals and the world, we try to assess the possibilities of decreasing the elitism of the technological culture and of configuring *an awareness of the common as a model of production of meaning and social participation* in order to sustain a renewed *intellectual majority*: the opening of reflection, mediated by a *practical wisdom*, to spheres of learning and knowledge – generated by *common* citizens who collaborate and investigate around common interests and assets – that express the capacity of participated knowledge in innovation.

Attraverso una analisi della semantica dell'innovazione e dei mezzi tecnologici del mondo contemporaneo, questo testo intende analizzare alcuni effetti dei regolamenti politico-politici (del modello capitalista) nella costruzione della scienza e la crescente rilevanza dell'economia della conoscenza, nonché valutare le sfide delle nuove pratiche di produzione della conoscenza verso la democratizzazione della conoscenza.
Dato un modello «cyber-imperiale» di prassi tecnologica, che prevede il desiderio di appropriarsi degli individui e del mondo, proviamo a valutare le possibilità di ridurre l'elitarismo della cultura tecnologica e di configurare una consapevolezza del comune come modello di produzione di significato e partecipazione sociale al fine di sostenere una rinnovata maggioranza intellettuale: l'apertura della riflessione, mediata da una saggezza pratica, nelle sfere di apprendimento e conoscenza, generate da cittadini comuni che collaborano e indagano su interessi e beni comuni, che esprimono la capacità di conoscenza partecipata all'innovazione.[1]

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Innovazione, Tecnologia, Democratizzazione, Conoscenza Profana, Conoscenza Partecipata.

1. Innovation and Technology: the two faces of Janus

Nowadays innovation appears almost always articulated with the business world and the latest innovations in science and technology. The ideas considered innovative relate to new «concepts» which are often identified with new products, subject to the evaluation of the business world and to access to new markets. Scientific innovation (new drugs may be an example) is often connected to its profitability, to profit increase, among, of course, other benefits.

Contemporary discourse on innovation comprises essentially new markets (and/or business niches), different types of organization and production processes. This thus means that innovation should involve a significant impact on the social fabric and on the economic fabric, as well as the success of new ideas.

Innovation, as a notion, was adopted «by the OECD in order to promote a more effective interaction between the productive sector and the areas of research and knowledge. This occurred at a time when the opening of markets and the rise in international competitiveness urged companies and governments to establish synergies involving technological research and industrial policy for the maintenance of economic growth rates.

The economist Christopher Freeman, considered a neo-Schumpeterian author, was responsible for the establishment of the concept in its current version. Since the 1960s, this discussion arises and develops with a clear corporate profile, being seen as a condition for companies and governments to achieve good performances in the international economy in light of market fluctuations and competitor threats» (Andrade 2005, pp. 145-156).

Within scientific research, we are faced with the growing demand for innovation. The agencies and companies for innovation which support, promote or integrate R&D projects are multiplying; and, here, the evaluation of the results relate to applications and the promotion of a *knowledge society and economy*.

The importance of the technological fabric and the rising economic value of knowledge are increasingly recognized, as well as the relevance of knowledge transfers to the development of countries and a better quality of life for people, in many cases, essential for the survival of mankind and even their fundamental role in the dissemination and progress of scientific culture. Innovation policies are thus part of the public agendas of the developed (and developing) countries.

Indeed, scientific research needs to be organized, with specific criteria and planned activities in the mid- and long term. But we have also been witnessing a technological-political management of all aspects of life, articulating science, knowledge, productive processes and economy; there is a celebration of the proximity between productivity, competitiveness, innovation and internationalization, typical of the capitalist model.

«The fundamental impulse that sets and keeps the capitalist engine in motion comes from the new consumer goods, the new methods of production or transportation, the new markets, the new forms of industrial organization that capitalist enterprise creates (...). The opening up of new markets (...) and the organizational development from the craft shop and factory to such concerns as U.S. Steel illustrate the same process of industrial mutation (...) which incessantly revolutionizes the economic structure from within, incessantly destroying the old, incessantly creating a new one. This process of Creative Destruction is the essential fact about capitalism. It is what capitalism consists in and what every capitalist concern has got to live in» (Schumpeter 1975, pp. 82-85).

The understanding of science as capital and the close connection between science and technology, in the technological age, sets up innovation as added value and it is seen, above all, as «ethical programme», naturalizing a view that legitimizes the policies on science and education in accordance with the capitalist production process. Education emerges mostly subjected to a utilitarian logic which makes it a vehicle of economic power and which subtly promotes the abandonment – or paralysis – of reflection on the social and political processes.

In the transition from an industrial economy to a knowledge economy – in which the qualification and requalification of individuals/workers is insistently required – education is no longer configured just as a (common) good but also as a service, since knowledge has become a fundamental means of value creation.

But if transforming knowledge and/or ideas into value, within the articulation between science and technology, is an important dimension to the increase of new products and services, it may also represent a strong impulse for the dissemination of knowledge, enabling access to information for more people, providing a decisive answer to the challenges of inclusion and therefore the democratization of knowledge.

The transformations in the ways of producing knowledge articulated with technoculture support and admit different experiences. They can undoubtedly raise the possibility of talking about a cyber-imperial model in which the technological praxis overcomes technology as an artefact, as the mechanical, revealing a desire to appropriate subjects and the world. Driven by a triumphalist digital discourse, it culminates in an ideology of technology, showing that the modern man, independent from God, and who claimed power over himself and the world, can now be the man without an interior, made only from transparency and surface, whose skin is not the dense memory of sorrows and joys, affections and passions, desires or tragedies, but the surface where the digital circuits cross, where messages circulate at the speed of light (cf. André 2005, pp. 93).

We have undoubtedly witnessed the primacy of the technocratic over the political and the preponderance of economic models over happiness or, at least, a confusing hybridism between having and being.

The changes brought by technologies can «raise other issues, although all are intimately interlinked; of course, the opposition between an elitist democracy and a mass democracy. If we believe that access to information and the web is just for "some" and that only by overcoming many obstacles - social, economic, educational and even political – will it be progressively for "many", we can hardly envi-

sion that it will be for "everyone". In this sense, the digital means may be appropriate only for a few and they can endanger democracy, reducing the activity of the citizen. However, we cannot forget that the possibility/promise of anonymity of the new media may involve renewed communication and participation activities and, thus, the growth of civic movements; which would mean, in a positive perspective, a politicization and appropriation of technology as a democratization of electronic public space; in other words, the irreducibility of that participation and decision-making to a world of possibilities and technical procedures. But in an access to extended democratic media - extended in the sense of decreasing the elitism of the technological culture and of its manipulation/colonization by small groups -, the irreducibility to the technical procedures must be coordinated with the clear distinction between access to services and information and the experience of citizenship. This implies a special care in education. This forces us to look at the educational experience and the experience of thinking as similar, and the latter, inevitably, with the political experience. If experiencing is to cross, at risk, the existence (...), the subject of digital experience must establish a renewed subject of experience: a "we", nor hybrid or fusional, not forgetting of oneself or the other, but conciliator between the individual and the collective. Thus, for the construction of a different subjectivity such as the democratization of new technological media, it must also appear as overcoming the solipsistic modernity - since

one of the dangers we face, at this time, is the radicalization of *egologies* - and the dispersion and liquidation of the subject as immerse in the multiplicity of discourse» (Alonso Puelles & Pereira 2008, p. 161, note 2).

2. Technological culture and knowledge: scientific knowledge and *profane knowledge*[2]

We accept that the digital era may involve an instrumental dimension of human reality, but we cannot forget the emergence of other ways of accessing information and knowledge production. The new (technological) contexts do indeed pose renewed challenges for philosophy and science, in the sense that they involve different knowledge communities that are not, in most cases, particularly academic but that set a new *profane knowledge,* as they are mainly composed by ordinary citizens who organize themselves – they collaborate and investigate - around common interests and assets. It is therefore necessary to pay special attention to new communities of knowledge and to the *culture* and *knowledge* that are there from emerging; this also implies a distinction between scientific knowledge and *profane* knowledge/understanding. This attention (reflection) also implies clearly overcoming the phobia of apprehending/understanding technologies beyond the technical objects. It means, or can mean, to truly *innovate:* to create, to think, to produce something distinct from the previous models; new ways of production, different concepts and new ideas.

Innovation, thus, is not only articulated with the creation of economic value, with the change of policy into technocracy or the technological-political regulation of science (concerning the means of capitalist production), but, increasingly,

2 *Profane knowledge* (*'Saber profano'*), in accordance with the meaning given by Lafuente, A. & Alonso Puelles, A. (2011) in *Ciência expandida, naturaleza comum y saber profano*. Bernal, Provincia de Buenos Aires: Universidad Nacional de Quilmes Editorial.

with contexts that go beyond the disciplinary limits established by academic boundaries; this means the production of knowledge occurs not only in the scientific spheres (research centers and universities) but also in more flexible and open environments, like society.

In recent decades, a socially contextualized conception of science has been developed, showing different explanatory models of the relationship between science, technology and society and, in that relationship, the new forms of knowledge production. Those models particularly reveal the complexity of knowledge production, underlining the nonlinear relationship between research and production, since the agents involved are diverse and participate in social contexts which are also different. The work *New Production of Knowledge* is a familiar example (Gibbons et al., 1994).

But what we find today, especially in the context of virtual communities, implies, I believe, a renewed awareness of the common as a model to produce meaning (and social participation).

Technology is in fact changing our reality; ICT (information and communication technologies) are not limited to the technical artefact or tools that provide better and more effective communication, they are also new possibilities as relevant spaces for the expression and life of citizenship and the constitution of the most diverse social movements. There are, certainly, many implications but what matters here relates to the possibility that they involve the construction and reconstruction of reality, stressing *free knowledge* as fundamental to a sustainable economic development, to education and the reconstruction of the public sphere as support to the *common good*. Many of the communities related to social movement networks have common interests and goals which aim to improve the living conditions, by protesting, by complaining, by cooperating in solving problems and/or through proposals for transformation and change; this implies that alongside the informative and communicative dimensions, we have the significant presences of the cognitive and reflexive dimensions, necessary to consider the issues at stake, which will thus eventually lead to the interpretation of reality and the world. In looking for resolutions, in view of the imposed official positions, other discourses are drawn up, other practices and other senses are configured. To report, propose, interpret, build different views of the world, are complex tasks that require what is called knowledge acquisition, as well as the conciliation between scientific knowledge, by experts or authorities with knowledge that falls outside those scientific domains, more popular knowledge. This conciliation consequently generates different representations and different ways of knowing and communicating. New forms of knowledge production are generated, more practical and more in accordance with the needs and interests of those involved, but which still connect with the traditionally built knowledge. And what results from these conciliations is not, nor can it be, ultimately neglected by scientific knowledge - historical, philosophical, sociological or economic.

What kind of knowledge has been produced in recent years outside the traditional spheres of knowledge production? How can we innovate and produce knowledge beyond the technological-political regulation of science, typical of the realms of capitalist production? These issues have to some extent been answered in the preceding paragraphs, but they still require a further clarification of the distinction between scientific knowledge and *profane knowledge*. Indeed, we all know that digital communities present new communicational behaviors: different possibilities of participation and public deliberations, accompanied by new ways of representation and negotiation among individuals and between individuals and institutions.

For Yochai Benkler (2006), the changes we are experiencing as a result of the development of networked information environments are structural and involve the possibility of strengthening the means of democratic participation. Citizens can see their autonomy increased and they can overcome the mere position of consumer readers and reconfigure the way and place of creation/production.

«Benkler defines the new surroundings as a digital environment formed by digital species (computer applications, operational systems, communication protocols, online services, business models, etc.) mutually related by symbiotic relationships of mutual reinforcement or mutual dependence. We can distinguish the relationships between positive forms – based on collaboration and oriented to mutual benefit – or negative ones – parasitism or depredation. These relationships have a fundamental role in the creation of new digital species that are spreading the center of power, taking the system back to the citizen. In order for this positive dynamic to be passed on, a digital ecosystem must develop an infrastructure oriented to services that are public resources. In this sense, a digital ecosystem is defined as a digital self-organizing structure oriented to the creation of a digital environment distributed in a network. It is characterized by a series of elements: shared knowledge, open technologies, standards and protocols, solidarity cooperation and new business models» (Bustamante 2010, p. 27).

This digital environment has the structure of a «*procommon*», which, for Benkler, configures institutional spaces in which certain freedoms can be exercised against the limitations placed by markets. It concerns the access to common goods not subject to a regulation (*ibid*.). Javier Bustamante, in line with Benkler, adds that «the more important and significant open *procommons* are science and culture until the 19th century. However, in the 20th century, a significant part of the culture stopped being *procommmon,* as well as some areas of scientific research. In the 21st century, according to Benkler, both science and culture are at risk of a progressive and unlimited privatization» (*ibid*.). But the *procommon* implies a means to progressively develop the democratization of culture and citizenship. "This enhanced citizenship is manifested through virtual social networks, blogs, videoblogs, exchange communities, Open Source and Free Knowledge movements, etc. But it is also manifested through the powerful movement of power displacement from the center of the system to the periphery, as the so-called communities of interest do *(ibid*.). These *communities of interest and peripheral knowledge* «are formed by patients suffering from diseases, and by acquaintances, friends and family of those so-called patients. They are people who have decided at a given moment, when facing the fragmentation of medical knowledge and the non-indifferent interest of pharmaceutical companies, to take control of their own disease and to start exchanging experiences and documents, studying heterodox hypotheses, introducing elements foreign to traditional therapies» (*ibid*., p. 29). Javier Bustamante recalls Antonio Lafuente who, in his work, *El Carnaval de la technociencia,* studied this dynamic in depth, stating that «these movements have transformed the understanding of the relationship between physicians and patients. They force physicians to listen to patients, since they now have an unprecedented arsenal of knowledge. Many times, the communities of interest themselves create new catalogues of disorders, syndromes or symptoms related to a disease or to a family of diseases. In addition, they promote medical studies with a statistical universe of unimaginable magnitude for any traditional laboratory or medical institution. By extension, those communities are substantially changing the relationship of citizens with science and of science with the established powers» (*ibid*.).

The participation of *interested* citizens in these networks represents an exer-

cise of active citizenship that decentralizes knowledge and reflects the possibility of openness to shared powers that express the ability of pooling knowledge in innovation, creation and production of culture, knowledge and information.

If there is anything we might consider striking about the new practices that try to break with the hegemonic power it is the overcoming of consensus, of the absolute, of the equal or the universalizing, framed by institutional power.

Here, I believe we can recall some ideas dear to Serres. Networked knowledge and information show us that the world today cannot be organized into an encyclopedia, but rather into a *chaospedia;* nowadays, there is a chaos and knowledge that compels us to establish networks or several architectures of relationships to respond to a changing world. Man has always lived in network, but these «networks» were to some extent dominated by a social hierarchy that prevented us from thinking in a *rhizomatic* way. And network does not only mean social idea or system, but to think communication as a place and a source of innovation, of knowledge.

The new knowledge and information produced, for example, in the communities of interest are not, in fact, specifically academic but *profane*. If until recently the relationship between science and society involved bringing scientific culture closer to citizens in order for them to understand that their lives depended greatly on scientific advances, through the opening of museums or science weeks, today we have to choose other paths compatible with new concepts, such as participation, risk, governance, and *procommon* (Lafuente & Alonso 2011, p. 31).

It is not about abandoning the old dissemination policies but about complementing them with the tools that involve citizenship in the management of uncertainty, either in the design of technological alternatives, diagnosis and treatment of certain diseases or in heritage and environment conservation (op. cit). An involvement that is certainly related with a certain lack of confidence in scientific development for some decades now; either because of the possibility of an ecological catastrophe, or distrust of some medications and therapies; because science is not just about nature, as was believed for a long time, but it is increasingly articulated with a knowledge economy, already mentioned previously, and with the exacerbation of the concept of innovation. This may imply the need to replace and reassess scientific problems and the possibility of anyone being involved in them, in the sense that they seek answers to the problems that interest or affect them, but also to recognize the value of this research by the citizens as part of scientific knowledge.

Thus, in the new knowledge communities we have thus come to have, alongside experts, scientists and academics, ordinary citizens who, facing a situation of risk, may prove to be more skilled, better researchers, better lawyers and better teachers (op.cit).

Some final considerations

The «digitalized» citizenship opens up new ways of communication, of thought and new forms of sociability. But technoculture can weaken human diversity in an instrumental processuality, jeopardizing the *pluralism* necessary to the life of citizenship. This implies the need to differentiate technology as a technical object from technology at the service of the *polis*, that is, the difference between a world of technical possibilities and policy as participation and decision-making; after all, what separates a democracy of (technical) procedures from a substantive democracy.

We are therefore confronted with the «need for a social appropriation of new technologies. We should thus learn how to cultivate a socio-technical culture, in other words, simultaneously social and technical, in the new generations who will design, through technical and political decisions, the future of this society. In a society that has the desirable aim to deepen solidarity and a concept of democracy that implies the ever broader participation of citizens in the decision-making processes that affect their lives and interests, this culture constitutes a true *infrastructure* of participation, a basic condition necessary to increase the presence of citizens in public life through better technological information» (Bustamante 2006, pp. 103-114).

The appropriation requires the necessary distance for critical reflection. This raises the question of the fundamental role of a *creative and innovative* education, particularly with regard to the need for the complex reconciliation between the individual (singular) and community life. An education that could (*originally*) revalidate the *paideia* generator of the human, by emphasizing that the *phrónesis* was born from the *experience of the other* within the *polis*; which legitimizes for Aristotle a *practical wisdom* sustained by a thinking distinct from demonstration, but even so rational. This is what sustains appropriation as ethical decision-making and construction of meaning.

One might think that the communication and information technologies can make us return to an intellectual minority, in the extent that institutionalized technological discourse often appears fused with political discourses that seek to repress the autonomy of will and freedom; but what we see, especially in relation to the communities of interest and the political (and social) participation through new movements supported by technological information, are new ways of dwelling that can allow the reorganization of time and spaces to rebuild civil society and politics. This means that philosophy must meet the challenge of permanent criticism against the catastrophic and/or denunciator discourses that consolidate prejudices and dogmatisms and prevent our mobilization towards a renewed majority - the opening of reflection to emerging knowledge and cultures, to a *profane knowledge* that does not compete with traditional scientific knowledge but that complements it and recalls the lesson of Ivan Illich: *conviviality*, the exchange of knowledge as a construction of educational space that allows the individual free access to all the information he wants to get on the most diverse matters and that simultaneously facilitates the coexistence, the contact, the connection between people who share a certain interest.

If the process of secularization was marked by an emancipation movement which enabled the transition from ignorance to knowledge (Kant), critical reflection today - mediated by a *practical wisdom* - about the new technological contexts may enable a second, more democratizing, secularization. The transition of the possession of knowledge by experts and scholars to the users, to an increasing number of people, can bring a renewed majority, by fighting the logic of inequality that fueled dichotomies and divisions that have guided the most diverse forms of monolithism.

The *emancipation* movement enabled *the transition from ignorance to knowledge*, in order to give humanity a state of wisdom that would pave the way to a perpetual peace (Kant), opposing, however, *knowing* to *making* and *creating*. But *knowledge is not a collection of fragments of knowledge*, it is a position (Rancière). A position that transforms passivity into action. A position and action necessary to *emancipation processes that make people able to create (invent) practices that do not yet exist* (Rancière, 2010); able to think what is still to be thought, able to discuss and invent *rules for discussion*, able to break with the

consensus and to unite knowing and doing, able to truly innovate/create *another majority*: that of the *common interested citizen*.

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