

THE PROGRAM CONECTAR IGUALDAD ANALYZED FROM ANDREW FEENBERG'S CRITICAL CONSTRUCTIVISM

O PROGRAMA CONECTAR IGUALDAD ANALIZADO A PARTIR DO CONSTRUCTIVISMO CRÍTICO DO ANDREW FEENBERG

EL PROGRAMA CONECTAR IGUALDAD DESDE EL CONSTRUCTIVISMO CRÍTICO DE ANDREW FEENBERG

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ABSTRACT: The objective of the article is to analyze the structure and the logic of operation of the Conectar Igualdad Program (PCI) developed in Argentina between 2011 and 2018 from the perspective of Andrew Feenberg's critical constructivism, in order to analyze salient aspects of said program with the focus on the processes of democratization and technological transformation. The method used was qualitative, descriptive and analytical. It is concluded that although the PCI was a program of such importance in relation to other policies in the area, certain difficulties can be identified in its implementation in relation to technological democratization since it reproduces logics of importing technology, distributing equipment and purchase of private licences. Even so, the intention of the program and related policies to walk towards technological sovereignty is highlighted.

KEYWORDS: Conectar Igualdad Program. Public politics. Educative technology. Andrew Feenberg.

RESUMO: O objetivo do artigo foi analisar a estrutura e a lógica de funcionamento do Programa Conectar Igualdad (PCI), desenvolvido na Argentina entre 2011 e 2018, a partir da perspectiva do construtivismo crítico de Andrew Feenberg, para discutir aspectos desta política pública com foco nos processos de democratização e transformação tecnológica. O método usado foi o qualitativo, descritivo e analítico. O estudo concluiu que o PCI foi um programa de grande importância em relação com outras políticas da área, podem se identificar na sua implementação algumas dificuldades em relação a democratização tecnológica já que o programa reproduz lógicas de importação de tecnologias, de distribuição de equipamentos e de compra de licenças privativas. Ainda assim, remarca-se a intencionalidade do programa e das políticas anexas de caminhar para a soberania tecnológica.

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PALAVRAS-CHAVE: *Projeto Conectar Igualdad. Política pública. Tecnología educacional. Andrew Feenberg.*

RESUMEN: *El objetivo del artículo fue analizar la estructura y la lógica de funcionamiento del Programa Conectar Igualdad (PCI), desarrollado en Argentina entre los años 2011 y 2018, desde la perspectiva del constructivismo crítico de Andrew Feenberg, a los fines de analizar aspectos salientes de este dicho programa a partir del foco en los procesos de democratización y transformación tecnológica. El método usado fue el cualitativo, descriptivo y analítico. Se concluye, que si bien el PCI fue un programa de tamaño importancia en relación a otras políticas del área, pueden identificarse en su implementación ciertas dificultades en relación a la democratización tecnológica ya que reproduce lógicas de importación de tecnología, de distribución de equipamientos y de compra de licencias privadas. Aún así, se remarca la intención del programa y de políticas anexas de caminar hacia la soberanía tecnológica.*

PALABRAS CLAVE: *Proyecto Conectar Igualdad. Política pública. Tecnología educativa. Andrew Feenberg.*

Introduction

Since ancient times there has been a close relationship between technologies and societies, thus, the ways of approaching technical phenomena and the discussions on how they are conceived become part of the daily scene, in societies where technology is increasingly present and where it seems more and more complex to talk about these phenomena separately (NASSRI; COUTO, 2021).

Part of this complexity is located in the theoretical debates, especially between the more essentialist lines as opposed to the more constructivist lines, which postulate different ways of approaching the technical. Essentialist theories (FEENBERG, 1999) are those for which technology is not an end in itself, but acquires the character of a totalizing experience of the world of life; that is, it becomes an environment and a way of life. For Feenberg (1999), essentialist theories consider technology as a new type of cultural system that restructures the entire social world and makes it an object of domination. On the other hand, constructivist theories reinforce the idea that technology and society are mutually co-constructed, in a constant interaction resulting from constant negotiations that end up generating a socio-technical assembly or a seamless fabric. In this framework, Andrew Feenberg (1991) presents his critical theory, or critical constructivism, as an updated alternative for analyzing technique: "through a holistic critique of technology and a theory about its democratic potentialities, Feenberg places technological change within a broader cultural context" (CAVALLI, 2013, p. 65).

Feenberg (2017), through his critical constructivism emphasizes the idea that technology is not a destination or a closed and stable horizon but a battlefield where the interests of different classes come into play reproducing existing hegemonies.

Through his main concepts (technical code, technical ambivalence, theory of instrumentalization) he proposes an exercise of analysis and reflexivity on technical systems in order to uncover all the relations between technology and dominant power and to demonstrate that technology is not neutral but can acquire diverse uses, related to the knowledge and the capacity to act of the different groups.

Starting from Feenberg's (2017) postulates, the objective of this article is to analyze the Conectar Igualdad Program (PCI), implemented in Argentina between 2010-2018, seeking to understand to what extent it could be considered an attempt at technological democratization. The research method was qualitative, analytical and descriptive. Throughout the article, the context in which the program was implemented is analyzed, in dialogue with the concepts of Feenberg (2017) and the most relevant features of the PCI are described to make them dialogue with the theory; always having as the idea of democratization and technological sovereignty.

Methodology

The qualitative method (VASILACHIS DE GIALDINO, 2006) of a critical and descriptive nature (MINAYO, 2012; VAN DIJK, 2016) was used to account for the proposed objective. The analysis of the program was built in a dialogic way between the information of the program, extracted from official documents, and the theoretical approaches of critical constructivism of Feenberg (2017).

Based on the proposed methodological approach, the analysis was articulated in three interrelated approaches. In the first one, a chronological description of the PCI trajectories was developed, which is supported by the background survey of previous research. From there, some salient or specific elements of the ICH were taken up again to be critically analyzed in contrast, and dialogue, with the conceptual proposals of Feenberg (2017). For the latter, the analysis is divided into two parts: on the one hand, aspects related to the use of technologies (PCI computers) in concrete situations in schools and the daily life of their primary users and, on the other hand, it focuses on macro aspects, related to the conception and perception of the program as a strategy of democratization and access, and the tensions around it.

Results and analysis

When the central countries were devastated by the impacts of the Second World War, certain international organizations were created with the mission of helping in the reconstruction of these countries, including, for example, the International Monetary Fund (FONSECA, 1999). When this first task was completed, these organizations were refunctionalized and directed their efforts to cementing the informatization of societies, especially in peripheral countries, since this was considered a necessary step for the establishment of capitalism at world level (FONSECA, 1999).

By 1980, peripheral countries began to implement programs and policies influenced by the agendas of the central countries and international organizations, aimed at developing scientific and technological areas in order to modernize societies and thus collaborate with capitalist expansion (BONETI, 2017). Perhaps, without these orientations from the central countries many of the peripheral societies would not have been able to make the leap towards informatization or technologization, however, we must not lose sight of the fact that following these programs coming from the center generated the beginning of technical subordination. This subordination is based on positioning the central countries as designers, constructors and ideologists of technologies while relegating the peripheral states to the position of passive consumers.

The school, as a universal institution, quickly became the medium through which the main technological policies were implemented. In its beginnings, the school as an institution refused technical advances, blocking the entry of equipment and policies. However, it was not for long: the technical culture gradually filtered into the school not only through the formal but mainly through the students and the educational community in general.

Through the implementation of technological programs promoted by international organizations in different developing regions, an economic logic of international division of labor was established in which some (central) countries acted as managers of the programs and as technological suppliers, while developing or peripheral countries were established as consumers.

Thus, technological inclusion policies were oriented towards consumption and importation not only of technological devices but also of programs and policies, and Argentina was no exception.

In Argentina, policies aimed at including technology in schools have been implemented since 1990. Initially, computer rooms or laboratories were created, installed in fixed spaces in

schools and aimed at primary literacy (MAGGIO, 2012). At the same time, the Federal Education Law 24195 was sanctioned, which boosted a process of decentralization and federalization of education (GODOY, 2019).

However, around 2003, Néstor Fernández de Kirchner assumed the presidency and began to develop national alternatives to both the technologization programs of societies and the manufacture of inputs and devices, understanding that the path should be oriented towards technological sovereignty. Thus, the Educ.ar platform is created, the launching of the ARSAT satellite and the implementation of national fiber optics to expand connectivity networks take place; transforming the state into an agent of social transformation (GODOY, 2019).

In 2006, and consistent with these policies, the National Education Law (26206) was passed, which postulates technological literacy as a right linked to inclusive and quality education. All this process seems to settle in 2010, when the Conectar Igualdad Program, inspired by Nicholas Negroponte's One Laptop Per Child (OLPC) initiative, was created, combining all the efforts and political initiatives.

It is in this decade that Latin American countries began to consider the technical issue within their political agendas, asking themselves and questioning their place in the global market and developing strategies to guide their efforts towards technological sovereignty. Argentina, which had already started this technological "era" with previous policies, reaffirms it through the creation of the "Argentina conectada" or "Televisión digital abierta" plans. Towards 2009, the Audiovisual Communication Services Law was passed, which seeks to transform the production matrix of audiovisual content by advocating the diversification of its content and which will later result in the creation of the National Telecommunications Plan Argentina Conectada, promoting the installation of digital access infrastructure nationwide (GODOY, 2019).

Linked to these policies, the Conectar Igualdad Program was created in 2010 as an inclusive policy that seeks to guarantee access to technological equipment through a distributive logic. The PCI distributes laptops in secondary schools, teacher training institutes and special schools, both for students and their teachers. Under the premise of technological universalization, it articulated different areas of the government and became one of the most important policies of the time.

Figure 1 – Computers from PCI



Source: El Cronista (2021)

PCI seeks to reduce the existing inequality in access to and appropriation of technologies. Beyond the impact on the student population, it also seeks to generate a breakthrough at the community level, which occurs when students take computers home.

If Feenberg's (1991) theory is taken as the axis, there are two points of analysis about the PCI that are of special interest: its articulated functioning and its own financing. Regarding articulation, the PCI works by articulating different governmental areas such as: Ministry of Education, Federal Planning, ANSES and Public Investment and Services, which implies a great logistics of distribution of responsibilities and management and an articulation between the nation, provinces and jurisdictions. When talking about financing, it is noteworthy that it is solved from ANSES with the national state budget, which already marks an independent intention by not receiving aid from international organizations (DA PORTA, 2015).

Taking into account the two previous points is that the PCI is a program of special interest to be analyzed from the postulates of Feenberg (1991): a marked attempt of technological sovereignty and democratization can be observed, seeking to reduce the existing digital gaps and seeking to reach various social sectors with this policy. Beyond that, the author's postulates, allow for a macro reading of the program attending to the global contextual analysis and proposing an alternative idea of modernity to be able to think about the technical developments of societies (FEENBERG, 2017).

The PCI was the largest science and technology policy carried out in Argentina, delivering more than six million computers in its eight years of duration. In addition to the

distributive logic of 1a1, the program also contemplated the creation of open educational resources and continuous teacher training, directly impacting digital literacy.

Although some criticisms can be made more than ten years after its launching, such as the fact that the demand was not met, that the technical equipment was not sufficient to meet the demand for repairs of the devices, that many of the schools did not have the technological floor to implement the program, among others, it is a remarkable policy.

In addition, the PCI made progress in other areas related to the idea of technological democratization and digital sovereignty, such as the use of free operating systems, the creation of national and open repositories and the call for bids from national industries for the purchase of computers.

Figure 2 – Youth with PCI computers



Source: Radio Formosa ([n.d.]).

Feenberg (1991), introduces the concept of technical code to talk about how functions, technical and social, are condensed and codified in a set of rules (TULA MOLINA; GIULIANO, 2015). Through these codes, activities to be performed with objects appear as permitted or prohibited, also linked to the functionality of each device. One notices in this concept an inspiration in Gilbert Simondon's (2007) concept of concretization, by differentiating this code from the more stable technical elements or technical elements.

Through the incorporation of the technical code, which is closely related to the idea of Simondonian concretization. Feenberg (1999) moves away from the idea of neutrality. According to Simondon (2007) technical objects become concrete in their becoming, through

a process of individuation in which they evolve as their degree of technicality increases. However, this evolution takes place within margins of possibilities lodged in the very essence of the objects, the lineage of artifacts to which it belongs is maintained throughout the evolution or individuation, resulting in an object that is no longer in struggle with itself, in which no secondary element hinders its functioning (SIMONDON, 2007). Feenberg (1999), in his concept of technical code, approaches this idea of concretization/individuation of objects insofar as both recognize stable elements of artifacts, those that keep the essence or lineage, which are not modified in the becoming.

Feenberg (2002), gives the notion of technical code different concepts, at first he defines it as specific social system values and dominant social class values installed in the technical design even before granting specific function to the object. These codes invisibly sediment class values and interests in the rules of design and use of artifacts and make it possible to show that technology is not in itself a destiny, but an arena of struggle). Later, in Critical theory of technology, the author speaks of technical code as the realization of an interest in the form of a technically coherent solution to a problem. When the perception that subjects have of their own interests in relation to technical problems reinforces these codes, their political significance often goes unnoticed (FEENBERG, 2005).

These interests are hidden behind the veil of technical necessity (FEENBERG, 2017). Thus, dominant positions are installed and fixed, which were once only values and today, already established, are transformed into technical code. In today's society, the technical code is linked to the hegemony of capitalism and reproduces the forms of power proper to it (FEENBERG, 2012). In relation to the PCI, the presence of technical code can be observed in three points: use of the Windows operating system (DOS), technology transfer from centers of power and reproduction of online classes.

Although PCI computers came with the dual boot option, the time lag (windows is entered by default, while open DOS must be selected) implies an advantageous selection for proprietary technologies (TORRES, 2019). In addition, the recipients were not trained in the management of open source so that, by customs, which become technical codes, windows is accessed instead of experimenting with linux or huayra (open DOS). Continuing to use these private licenses not only means a setback in the attempts of technological sovereignty but also demands an economic investment to pay for them.

The DOS problem may have an earlier origin, if we recall in the first paragraphs that the PCI was inspired by Negroponte's OLPC program, i.e., a program created and oriented by the central countries and offered to peripheral countries. If this is taken into account, it can be seen

that in the seed of the PCI there are logics of dependence and subordination of the peripheral countries towards the central countries that are later shown in different instances: the programs are not adopted but licenses are purchased or equipment produced in the dominant countries is bought. These decisions are made under the premises of an invisible and naturalized technical code, which eliminates the possibilities of critical reflection and reproduces the logics of power. Through this transfer of technologies from the centers of power, ways of understanding the world are imported, while limiting the dialogue with the target community of the program (TORRES, 2019).

Another aspect from which the presence of a technical code can be analyzed is in the reproduction of offline classes from the arrival of computers, which evidences that their presence is not disruptive in the teaching/learning process. This is related to the technological synecdoche proposed by Benitez Largui and Zukerfeld (2015) to refer to the vision that PCI recipients have, from which the program is only to distribute computers, ignoring the other functions. This factor generates that the possibilities of disruption in traditional teaching are limited and the possibilities of technological appropriation are restricted, which is in tune with the instrumental approach that societies usually have and that is embedded in the codes (QUINTANILLA, 1998). Such an instrumental approach ends up overshadowing the rest of public policy and does not allow new values to take root in the technical codes of society.

To shed light on the way in which social values are embedded in technological decisions, Feenberg (2010) introduces the concept of technological bias. The author says that there are two types of biases, on the one hand, the substantial bias, a set of prejudices and beliefs that influence decisions that should be based on objective criteria; this bias "designates some members of society as inferior for all sorts of specious reasons" (FEENBERG, 2010, p. 163) generating obvious inequities.

On the other hand, formal bias is hidden in the system itself and can only be revealed through context analysis. It may happen that, at first glance, a device may appear democratic or harmless but nevertheless discriminate against a certain sector (FEENBERG, 2010). This bias is used to describe prejudicial social arrangements and prevails whenever the choice of certain systems favors one group to the detriment of another. This formal bias is typical of modern societies and "characterizes conditions in which formal equality contradicts social content" (FEENBERG, 2002, p. 81, own translation).

The most complex aspect of the analysis of these biases is that they do not represent a priori an injustice, but rather are based on principles of equity (FEENBERG, 2002). In relation to the PCI, it can be said that, like many policies aimed at digital inclusion, it is about giving

the children of the poor in schools the same as the children of the rich have at home and even generating a digital impact on lower-income families through 1X1 programs. However, this implementation has discriminatory consequences, not because computers are inherently bad, but because the devices are distributed in a context of wealth/poverty.

Technological inclusion policies often end up generating practices that are primarily expulsive, not only because from the outset they separate society into differentiated or focal groups that will be targeted by them, but also because, if they are not sufficiently articulated with other policies, they can result in policies that are adequate in theory but ineffective in practice. An example of this will be the situations derived from the contexts of insecurity in which many of the students who received the computer live and who, after assaults, stopped moving the devices between home and school, breaking with the logic of 1to1. Another similar situation occurs when computers are delivered, but the minimum technological floor or network connectivity is not guaranteed, thus generating a double expulsion.

Although the logic of equipment distribution helps to reduce access gaps, it does not break the logic of domination, since these are rooted in the system's matrix: the use of private licenses, the delivery of computers without Internet guarantee, the underuse of technical possibilities of devices and the lack of literacy contribute to perpetuate these logics, hidden behind the image of an inclusive policy. Thus, the real possibilities of digital appropriation are limited, since inclusion is based on applying the same standard to unequal groups (FEENBERG, 2002).

From the theories of Feenberg (2010), it can be said that the PCI has a formal constitutive bias in terms of computer components (private DOS, subuse) and the lack of Internet connection; and it has a formal implementation bias in the way in which it attempts to remedy the problem of the digital divide at local and regional level, through inclusion and not democratization.

Feenberg (2002) introduces the notion of technological ambivalence, differentiated from neutrality by the role he gives to social values in the design and not only in the use of technical systems. For the author, technology is not a destination but a battlefield, an arena of struggle, "a parliament of things in which the alternatives of civilization meet" (FEENBERG, 2002, p. 15). Technology expresses that technique is ambivalent of the civilizational project for which it is used, technology itself has the potential to perform in diverse projects (TULA MOLINA; GIULIANO, 2015).

Technological ambivalence helps to analyze the correlation between technological progress and the distribution of social power, which does not necessarily have a unique way of

manifesting itself (FEENBERG, 1999). It is necessary to talk about technological ambivalence as a locus of social change, challenging the unidimensionality of technological thinking (FEENBERG, 2013). Moreover, it is necessary to take into account that there is also an ambivalence in the same people: there is a desire to use technologies that coexists with the desire for self-determination (TULA MOLINA; GIULIANO, 2015). Thus Feenberg (2013) appeals to individual reflection to challenge and reconfigure the dominant cultural system. The main locus for the contest of technological ambivalence is the technologically mediated institutions in which it is possible to create a space for social transformation.

PCI computers included dual boot, split between Windows (private) and GNU Linux/Huayra (free), which is a step towards social and technological transformation, providing space for a locally produced operating system. However, the free option was set by default, which, added to the lack of training in this regard, led to an underuse of the free options. This point is important when one considers what is involved in acquiring Windows licenses and the importance of creating a national SOL. Although we consider that there was not enough work to generate the use of Huayra, the effort to provide computers with a free option stands out, since the successor of the PCI, the Plan Aprender Conectados, did not incorporate these possibilities. Today, in 2022, with the re-launch of the Conectar Igualdad Program, this debate is back in vogue when the government once again announces the double boot, backtracking once again and pleasing the large technology multinationals.

There is a difference in power between those who manage technological systems and those who use them: operational autonomy (TULA MOLINA; GIULIANO, 2015). It is based on a greater degree of freedom of the sectors that hold more power to be able to make decisions that, even influencing everyone, does not allow other sectors to take a position. As a response to this mode of action, the excluded or non-powerful sectors carry out certain resistance actions known as room for maneuver, linked to the capacity for agency and individual reflexivity, which seek to resist the control exercised by the dominant sectors.

It is possible to speak of operational autonomy in relation to the PCI in two senses: on the one hand, there is an articulation of four large areas of the government for the implementation of the program, but there is no evidence of consensus or debate involving other sectors of the population equally affected, for example, the educational community. On the other hand, all decisions regarding the technical specificity of the teams are taken from within the government with unilateral decisions, which, again, do not present stages of dialogue or collective construction.

If the focus of analysis is placed on the maneuvering margin, three situations or indicators of this can be read in the implementation of the PCI: alternatives put in place by students in the face of the blocking of computers outside the school space; appropriation of computers for recreational use, for example by installing video cards, and removing components linked to the educational function; and, a reuse or refunctionalization of the school space and its surroundings that become relevant when they are transformed into ports for Internet access or to avoid the blocking of devices, for example, playgrounds and sidewalks.

Feenberg (1999) through his theory of instrumentalization allows for a dialectical analysis of technique (CAVALLI, 2013). At a first level, called primary or functionalization, the technique will be analyzed detached or isolated from its context and experiences of use, starting from a reduction and decontextualization. The analysis of the ICH from this level responds only to technical parameters: type of equipment, operating systems, components, technological floor, etc. As it is detached from the context, the technique appears at this level analyzed in detail, with special emphasis on its functionality or usefulness. At a second level, called secondary or realization level, it is proposed to generate a reinsertion of the technique within the social and natural environment in which it is produced, generating a process of recontextualization (FEENBERG, 1999). At this level of analysis it is not possible to speak of the ICP without thinking of the conjunctural characteristics of the environment in which it is situated, and to analyze it within a global political system, in articulation with other policies or programs.

In this contextual analysis it is necessary, for example, to talk about the place of free software debates in Argentina and in the region, which, although beyond the objectives of this article in particular, are still relevant aspects when thinking about policies in the technical area.

Final remarks

The proposed approach, in which the PCI and the theoretical postulates of Feenberg (1991) were placed in dialogue, yielded the main results that the PCI should be considered as a macro policy, of great importance not only at the national level but also at the regional level in terms of technoscientific development. It was a program created, financed and managed by the government, articulating for them various areas of work. By proposing the articulation of several areas, it made possible a massive involvement of actors in its operation, generating a state policy of great relevance.

The analysis in relation to Feenberg's theories (1991), allows an evaluation of the PCI in relation to democratization and technological transformation, which, although it is one of the program's axes, has presented some difficulties in its implementation. Whether because equipment was purchased from foreign multinational companies, because the distributive logic was perpetuated or because private licenses continued to be used, all these elements make it difficult to speak of the PCI as a proposal for technological sovereignty, although it is clear that it is superior to similar local and regional policies.

In analyzing the PCI and being able to conclude that, although it did not reach standards that could account for a transformation in the technological matrix, it did position itself in a line tending towards both sovereignty and democratization. Unlike the PCI, the plan that followed it, during the presidency of Mauricio Macri (2015-2019) called Plan Aprender Conectados (PAC) generated an interruption in this process since it was based on a logic of acquisition of equipment from foreign companies and its subsequent distribution to schools without a contextual framework that could help generate a conscious and effective use of them. This difference between the plans shows that there are state policies that should try to be maintained even in times of change of political management, since their interruption generates important consequences, as was reflected in the Covid-19 pandemic that called into question the massive digital divide existing in societies.

This article attempted to generate a dialogue between theories on technologies and a reference policy at the national and regional level. Although indications can be detected that the implementation of the PCI did not meet the initial objectives of technological sovereignty and democratization, it should be noted that its existence caused a positive break in the digital divide indices and opened the door for new policies to be tested and implemented. Today, more than twelve years later, the Conectar Igualdad Program is back in the spotlight when the national government announces its relaunch: new criticisms, new debates and, above all, a controversy about which technological path to follow as societies is once again a hot topic. From sectors linked to free software or from schools, there is an attempt to prevent the PCI from falling back into the perpetuation of the international distribution of work, highlighting the need to position Argentina as a country capable of deciding, producing and consuming, in a conscious and critical way, its own technology.

For future analyses, it is expected to be able to contrast the two eras of the Conectar Igualdad Program, which clarify a particular type of state policy.

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