

DIGITAL AND SOCIAL INEQUALITIES: A QUALITATIVE ASSESSMENT OF THE IMPACT OF THE CONNECTING EQUALITY PROGRAM ON ARGENTINEAN YOUTH

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ABSTRACT

This paper focuses on the ties between social and digital inequalities among Argentinean youth. It uses a qualitative approach to explore different aspects of the everyday lives of adolescents, such as sociability, leisure time and family use of Information and Communication Technologies (ICTs), in order to assess the impact of the Connecting Equality Program (Programa Conectar Igualdad, PCI) on reducing digital inequalities and fostering social inclusion. In particular, the paper explores what were the existing conditions of access for students and their families when the PCI was first implemented? What influence does the implementation of the PCI have on the individual, family and scholastic appropriation of ICTs? How does the use of computers and the Internet vary among youth? Has this large-scale incorporation of netbooks in schools, and especially homes and free time changed it in any way? Does the appropriation of ICTs through student participation in the PCI contribute to material and symbolic social inclusion? To answer these questions, we compare the processes of ICT appropriation among lower and middle class adolescents, focusing on the distinctive uses and meanings assigned to computers and the Internet by boys and girls in their daily lives. For this purpose we analyze data collected through semi-structured interviews in two schools in Greater La Plata, Argentina during 2012. The main findings show that in terms of access, skills and types of use, the implementation of the PCI has had a positive impact among lower class youth, guaranteeing access to their first computers and promoting the sharing of knowledge and digital skills with family members. Moreover, evidence of more diverse and intense use of ICTs among lower class students reveals the development of digital skills related to educational activities. Finally, in terms of sociability, having a personal netbook enables access to information and cultural goods which are very significant in generating ties and strengthening identities and social integration.

Keywords: Inequalities; ICT Appropriation; Adolescents; Qualitative Approach

1. INTRODUCTION

In Argentina there are multiple digital divides in access, use and appropriation of technologies by young people. According to specialized literature, ICT access trajectories are heterogeneous and affected by a variety of different factors, including social, generational, economic, gender and cultural considerations (Galperín, 2013; Winocur, 2007; Barrantes, 2007; Urresti, 2008; Benítez Larghi et al., 2011). Age is one of these factors. According to data from the National Survey on Access and Use of ICTs in Argentina¹, adolescents are the

¹Encuesta Nacional sobre Acceso y Uso de las Tecnologías de la Información y la Comunicación (ENTIC).

most frequent users of computers and Internet. Moreover, the devices are found more often in homes with adolescents than in homes where only adults are present (INDEC, 2012b:7).

However, access to and use of ICTs are not only mediated by generational divides. During the last several decades in Argentina, access to computers and Internet was biased according to socioeconomic level, proximity to big cities, gender and age (SNCC, 2008; Urresti, 2008). Until 2010, a clear social digital divide in access to these technologies could be observed, since users were typically middle and upper class, with a higher representation of young males from big cities. According to the latest National Census (2010), one out of two Argentinean homes did not have a computer and 46% of the population had never used the Internet (INDEC, 2012a). Nevertheless, the implementation of the Connecting Equality Program (Programa Conectar Igualdad, PCI²) since 2010 has transformed this landscape, contributing to the very dynamic evolution of computers supplied for personal use. More recent data indicate that the percentage of homes without a computer decreased to 46.2% in 2011 (INDEC 2012b).

The connection between ICTs and social inequalities has long been the subject of debates and discussions. In a more general way, this relationship is connected to the topics of technology and society (two intrinsic aspects of the social sciences), and the ways in which both interact. In the case of ICTs, some authors (Negroponte, 1995; Castells, 1997) suggest that the emergence and social use of digital technologies is useful in reducing existing inequalities, while others remain skeptical about the potential of ICTs in this field (Warschauer and Ames, 2010) or warn that they can actually reproduce and exacerbate inequalities (Turkle, 2011; Sibila 2008; Reygadas, 2008).

The purpose of this paper is to understand the different and complex ways in which social and digital inequalities interact in the everyday lives of adolescents and how these inequalities are affected by the PCI. Therefore, we use a qualitative perspective to explore different aspects of Argentinean adolescents' daily life such as sociability, leisure time and family use of ICTs. We compare the processes of ICT appropriation among adolescent males and females from the lower and middle classes, analyzing data collected in semi-structured interviews conducted in 2012 with young students who received netbooks through the PCI in two schools of Greater La Plata, Argentina³.

Our main findings show that in terms of access, skills and types of use, the implementation of the PCI has had an affect on lower class⁴ youth, ensuring them access to their first computers and promoting the sharing of knowledge and digital skills with family members. Moreover, there is evidence of more diverse and increased use of ICTs among lower class students, revealing the development of digital skills related to educational activities. Since these skills were already largely present in middle class families, the PCI

²This is a state program that incorporates ICTs into education, based on a 1-1 model. Over 3.5 million netbooks have been delivered to students and teachers in public secondary schools around Argentina.

³Here we present the results of the SIRCA II research project "Youth, inequalities and ICTs: A qualitative study of youth paths to the incorporation of computer and Internet in the framework of Programa Conectar Igualdad" (funded by the IDRC and the Nanyang Technological University of Singapore), the PICT Project 2011-1639 "Jóvenes, desigualdades y TIC" (funded by ANPCyT) and the PIP Project 0756 "TIC, juventudes y experiencias de tiempo y espacio en el marco del Programa Conectar Igualdad" (funded by CONICET).

⁴Our choice of "lower class" as a phrase to delimit the empirical framework of our research is the result of intense discussions and group reflection. While we are aware of the theoretical—and methodological— complications implicit in this term and the importance of current academic debate on the subject, we believe that "lower class" offers a better conceptual ductility than other categories used in the social sciences to account for these groups (marginal sectors, excluded or low-income populations, urban poor, etc.). To some degree, this choice is based on the analysis of academic traditions on the subject written by Miguez and Semán (2006). When we refer to "lower class" and "middle class" adolescents, we are alluding to a broad set of social, educational and economic factors that involve not only the youth but also their families.

tends to reduce the first and second levels of the digital divide⁵. Finally, in terms of sociability, individual possession of netbooks enables access to information and cultural goods which are very important in generating weak but significant ties (Granovetter, 1973) or contacts, and strengthening identities and social belonging, thereby contributing to the acquisition of social capital (Bourdieu, 1988).

After this Introduction, Section 2 presents the background, conceptual framework and questions that guide our research. Section 3 describes the methodological approach. Section 4 displays the main findings comparing experiences of ICT appropriation by lower and upper-middle class students in terms of access, the development of technological skills and the modalities of computer use. In Section 5, the results are discussed, taking into account the revised literature. Finally, in Section 6 - Conclusion, we propose concepts based on these results that can help foster an understanding of the complex interaction between social and digital inequalities, along with a series of recommendations to consider when designing policies and programs aimed at the social and digital integration of young people.

2. BACKGROUND

The literature concerning the link between ICTs and social inequality has proposed a variety of concepts such as “digital divide” (Warschauer and Ames, 2010; Warschauer, 2002; Camacho, 2005; Barrantes, 2007; Castells, 1997) and “digital poverty” (Barrantes, 2007; Galperin and Mariscal, 2007) aimed at explaining “digital inequality” (Di Maggio et al., 2004). These concepts are all related to the differences in access, use and appropriation of ICTs in developed, developing countries and among different social sectors.

The concept of *digital divide*, coined in the early 1980s by the Maitland Commission, was one of the first used worldwide to reflect the social impact of ICTs, and rose to peak popularity in the 1990s. According to Camacho (2005), assumptions associated with the digital divide have changed. Initially, the link between ICTs and development was conceived of in a linear and determinist way, as if access to technology produced social development (Camacho, 2005). Following subsequent academic and political debates and the incorporation of new factors, the concept of digital divide became increasingly complex. From a critical perspective, Camacho (2005) and Warschauer (2002) highlight the importance of considering digital divides in their social and historical contexts, with regards to the interests and needs of various social sectors, taking into account divides related to not only hardware and software access, but also to information, knowledge and the skills necessary to make use of technological devices significant. The economic aspect of the digital divide refers to access to equipment and connectivity, conceptualized as the first-order digital divide. However, there is also a cultural aspect of the digital divide, the second-order divide, defined as the absence of cultural and educational tools which affect the capacity for ICT appropriation. Lastly, if we consider “how” and “why” different users use technologies, we find a third-order digital divide, which, according to Camacho (2005), consists of “the possibility or difficulties confronting social groups in taking advantage of information and communication technologies collectively, transforming the reality in which they live, and improving participants’ living conditions.” In this sense, we view access and digital skills as necessary but insufficient conditions for ICT appropriation.

The concept of *digital poverty* examines social differences in the use of technologies from a multi-causal perspective. Unlike the concept of divide, it does not focus on the issue of technological availability, but rather on restrictions that affect demand. Digital poverty can

⁵Following Camacho's critical perspective of the “digital divide”, we understand the “first-level digital divide” as economic factors preventing access to equipment and connectivity and the “second-level digital divide” as the absence of knowledge and skills needed to use the Internet and technological devices (Camacho, 2005).

extend beyond economic restrictions or physical barriers to access. This approach focuses on issues affecting demand, when particular subjects may potentially have access to technologies but have no interest in or knowledge of them, and this prevents them from using ICTs. Generational and educational barriers are the main variables in this concept. Barrantes (2007) proposes a poverty typology of digital technologies which takes into account three determining factors: a) economic resources or income; b) cognitive abilities to use ICTs; and c) physical access to ICTs, understood as their availability. The conditions of digital poverty vary according to four variables: age, educational level, availability of infrastructure and types of technology used.

The concept of *appropriation* is crucial to understanding the perspective of subjects in their use of technologies. Thinking in terms of appropriation, we can consider the needs, purposes, skills, achievements, expectations and anxieties associated with ICTs that have an impact on the technological practices developed by users. By appropriation, we mean the material and symbolic processes of interpretation and the assignment of meaning to a specific cultural artifact by a given social group, emphasizing the ability of subjects to make this process meaningful with regards to their objectives (Thompson, 1998: 62). That is, it is a socially, historically and biographically constructed experience that varies according to social class, gender, generation and personal history.

Based on the concepts discussed above, the following questions guide this work and our exploration of the four dimensions generally used to study digital inequalities:

1. With regards to the concept of the first-order digital divide or access divide: what were the existing conditions affecting the access of students and their families when the PCI was first implemented? What impact do social class and gender have on access and what role does the PCI play in balancing these perceived differences?
2. With regards to the second-order digital divide and the issue of demand associated with the concept of digital poverty: what influence did PCI implementation have on ICT appropriation by individuals and their families? How do students perceive the influence of the PCI on their own digital skills? Are digital skills shared among family members?
3. With regards to the third-level digital divide or the issue of usage: how does the use of computers and the Internet vary among young people? Have they changed in any way following the large-scale incorporation of netbooks into schools and, most especially, homes and free time? Have daily routines changed?
4. With regards to the appropriation processes studied: does the appropriation of ICTs through student participation in the PCI contribute to material and symbolic social inclusion? In what ways do youth appropriate social networks? Which practices are common among all groups and which differ according to gender and social class?

In order to analyze these dimensions we considered different indicators to read the data and contrast hypotheses and concepts, as shown in Table 1.

Table 1. Indicators used for Data Analysis

DIMENSION	CONCEPTS	INDICATORS
1. Access and connectivity	<ul style="list-style-type: none"> ○ First-order digital divide ○ Digital poverty 	<ul style="list-style-type: none"> ○ Access conditions: i.e. number of computers and availability of Internet connectivity in homes ○ Individual and family histories with ICTs
2. Technological skills	<ul style="list-style-type: none"> ○ Second-order digital divide ○ Digital poverty 	<ul style="list-style-type: none"> ○ Types of skills. ○ Changes perceived in digital skills following PCI implementation. ○ Sharing of digital skills among family members
3. Computer and Internet use	<ul style="list-style-type: none"> ○ Third-order digital divide ○ Digital poverty 	<ul style="list-style-type: none"> ○ Programs used ○ Diversity of use ○ Situations of use ○ Usage context ○ Usage place ○ Frequency and Intensity of use ○ Objectives of use ○ Routines
4. Forms of Appropriation of Online Virtual Social Networks	<ul style="list-style-type: none"> ○ Appropriation 	<ul style="list-style-type: none"> ○ Choice of platform ○ Frequency and Intensity of use ○ Objectives of use ○ Sense of belonging ○ Identification

3. METHODOLOGICAL ASPECTS

We understand inequality as a social relationship from which dominant and subordinate groups emerge through active processes of constructing social boundaries (Lamont and Fournier, 1992). As a result of these divisions, access, leisure activities, experiences, social status and standards of living are divided into groups (Bérard, 2006). Social distinctions are constructed, reinforced and also challenged through categorization processes that locate and separate people in certain social or identity groups (Tilly, 2000). In order to highlight these differences and grasp the influence of specific public policies such as PCI, our research is based on a constructivist view of technology (Pinch and Bijker, 1984; Latour, 1992) and a socio-anthropological approach to the processes of ICT appropriation (Hine, 2004; Winocur, 2009, Thompson, 1998). We therefore use the interpretive paradigm (Vasilachis de Gialdino, 1992) from a qualitative, comparative and diachronic perspective. Our research focuses on the life experiences of young people and their relationships with technologies, based on the subjective factor of computer ownership and Internet use, and the importance of the cultural imaginary in this process. It aims to understand people within their frames of reference (Taylor and Bogdan, 1986) and is constructed through relational dialogue with subjects (Scribano, 2008).

We conducted semi-structured interviews with students from two high schools, one located in the centre of La Plata and another in Berisso (an industrial and working class city located a few kilometers from La Plata), both participants in the PCI. The first school selected was Colegio Universitario⁶ in La Plata—hereinafter School A—located in the historic city centre, which is attended by upper-middle class students who mostly live in the city centre or in the northern suburbs. The majority of their parents hold degrees from the local university and have well-paid, long-term employment. The second school selected was Escuela Media in Berisso—hereinafter School B—attended by “lower class” youth. Adolescents at School B mostly live in impoverished neighborhoods and contribute to household income by working several days a week at part-time jobs. Most of their parents completed primary and, in some cases, secondary school and they mainly hold unstable and low-paid jobs.

We conducted 40 interviews, 20 in each school, with 4th and 5th year secondary school students in each case (this means that, on average, students were between 15 and 17 years old). Students were selected using the criteria from the theoretical sampling (Glaser y Strauss, 1967), seeking to maximize the differences between individual and family socioeconomic situations. To do this, we relied on the support of school staff (principals, hall supervisors and teachers)⁷.

The interviews were processed using the program ATLAS.ti. Taking answers from the interviews, we built a database and analyzed the results. We applied descriptive tools and constructed complex variables mixing ICT appropriation with social class, gender and age.

4. FINDINGS

In this section, results are discussed regarding the revised dimensions and concepts.

4.1 Access and Connectivity: Impact of PCI on the First-Order Digital Divide

Confirming tendencies shown in the official statistics, we found that among the youth interviewed for our research, the rate of computer possession is high. Not only do all of them have netbooks from the PCI, but some also have additional computers at home, obtained prior to or after the implementation of the PCI. This was the case with all students interviewed from School A and three-quarters of the students interviewed from School B. However, we observed important differences in the availability of technology in homes according to social class.

Firstly, we noticed that upper-middle class youth (School A) live in contexts of technological abundance, in homes with two or more computers in addition to those distributed through the PCI. In contrast, most of the young people from lower classes (School B) have either zero or one additional computer at home. The greatest impact of the PCI in terms of access has been among this group, students who did not have a computer before the program or only had one device, generally shared by the whole family.

Secondly, regarding Internet access, whereas all the upper-middle class adolescents we interviewed (living in La Plata) have an Internet connection at home, connectivity decreased to three-quarters of cases in lower class youth (living in Berisso).

Thirdly, the most relevant difference between adolescents from upper-middle and lower classes is related to how early they had a computer at home. We found that all upper-middle class youth interviewed have had a computer at home for more than five years.

⁶ A secondary school associated with the National University of La Plata.

⁷ Results and findings from this research should not be extrapolated to the general population given the exploratory and qualitative perspective of our methodology.

C: "I began using the computer as a child. My mom was studying and I used Power Point. Afterwards, I began using MSN. My mother has a master's degree in English and another in e-learning. My dad is an IT consultant and programmer. Both of them trained me."

Interviewer (I): "Do all of your family members have their own computer at home?"

C: "Yes. I got mine as a birthday present when I was thirteen."
(Camila, 16, School A)

However, in lower classes only a third of students have had computers for more than five years at home. Therefore, for most lower class adolescents access to a computer in their own homes is relatively recent (i.e. for 40%, less than two years).

These differences become more profound when we study their histories of Internet access; again, there are significant differences between both classes. While most upper-middle class youth interviewed stated that they have had Internet service at home for more than five years, in lower classes most of them have had this service for one or two years and an important number have gotten it more recently, in the last six months or less. That is why cybercafés played such an important role in their experiences. Basically all the students interviewed from School B had their first experience with the Internet at these public locations. Jorge's experience reflects this as well as the ways in which conditions for access changed after netbooks were distributed through the PCI. The program also subsequently encouraged contracting an Internet provider and cybercafés lost their previous prominence:

J: "My first contact with the computer was when I was 11 at the cybercafé. My friends taught me to play with them. I used the Internet for the first time at the cybercafé because I wanted to open an MSN account. Although I had a computer at home, when I tried to open it a window told me "There is no Internet connection". So I didn't use it. I'm not interested in the computer if it doesn't have an Internet connection." (Jorge, 16, School B)

Finally, in terms of gender, no important differences were found between males and females at this point.

In this section we showed that despite the growth of ICT access in our country over the last several years, conditions for access to computers and the Internet remain unequal for adolescents from lower and upper-middle classes. Even though the relationship between socio-economic status and ICT access is almost a given in the field of ICT for Development (ICTD), we found that differential individual and family histories are a key factor in explaining this relationship. In the following sections we will focus on understanding the development of ICT skills and uses, without losing sight of differential starting points.

4.2 Digital Skills: Results Regarding Digital Poverty Alleviation

Prior to the implementation of the PCI, students from School A had greater and more diverse computer skills when compared with students from School B, especially those related to "office work". These include developing graphic presentations, sending documents by e-mail, using spreadsheets, saving documents in files and using word processors. Nevertheless, there were no differences among the students from Schools A and B regarding skills related to taking and editing photos and the use of social networks and searching for information online.

Students from School A made greater use of ICTs not only at home but also at school. Moreover, for most of the middle-class interviewed, their parents and older siblings played an important role when they began using computers and Internet at home. For middle-class adolescents, access to ICTs at home had enabled intensive and diversified use of computers and the Internet from a young age.

I: "Tell me about your first experience using the computer and Internet. Do you remember when it was?"

A: "I started playing computer games with my older brother. I also used to arrange chat sessions with my best friend, we would call each other on the phone whenever we could use the Internet at home, because it was a dial-up connection. At the time, I was seven years old."

I: "Did your parents use the computer at that time?"

A: My dad, for work. (Ana, 16, School A)

Students from School B had access to ICTs at home or at cybercafés later on, as well as less intensive use of computers at school. Additionally, most of their parents did not know how to use a computer, so as children they learned from older siblings or were trained by staff at cybercafés.

I: "Do you remember the first time you used a computer?"

R: "Yes... I didn't know anything... I didn't know how to use a keyboard or a mouse. I was at a cybercafé with my [older] brother. We went there to play online games. He asked me to go with him. I was 14 years old. I wanted to know how it felt to use a computer... what it looked like." (Rodrigo, 17, School B)

If we analyze students' perception of the evolution in their digital skills following the implementation of the PCI, we find similarities in the lower and middle classes. In both cases, their perceptions of changes are closely related to their relationship with ICTs as well as their teachers' attitudes towards the use of the netbook in the classroom. The perception of an increase in digital skills in School B is linked to the development of competency in the use of software such as word processors, spreadsheets and graphic presentations. As a result, some of these digital skills are now equally distributed among students from School A and B. However, there is still a significant difference between lower and middle classes in skills related to the use of spreadsheets or sending documents by email. In the case of students that had considerable skills before the PCI was implemented—mainly from School A—there was less of an increase in digital abilities and new skills are mainly related to the use of specific software for school subjects such as chemistry, math and physics, as well as image and sound design. Since the PCI was first implemented, the majority of students in both schools developed new abilities to locate useful and meaningful information online.

During fieldwork, students from both schools commented that an important part of the new digital skills they have acquired following the implementation of the PCI occurred at school. They emphasized that this development took place in subjects in which teachers encouraged students to use their netbooks, preparing special activities and homework to incorporate ICTs into the curricula. Other meaningful skills were self taught or acquired from friends.

On the other hand, several students complained about the lack of interest demonstrated by some teachers in using the PCI netbooks in the classroom, pointing out that it would be really useful if teachers taught them how to use new and different computer

software. Additionally, the majority of students mentioned the fact that some teachers lack digital skills and this constitutes an obstacle for using the netbooks in many subjects.

S: “The PCI is great, but it is hard to introduce at school... you need teachers' cooperation to implement netbooks in the curricula. The attitudes of teachers is an important part of the PCI. It involves changing the way teachers organize subjects and activities during school time. Sometimes teachers have been working the same way for 20 years, using a pencil, and suddenly you want them to start using a netbook to teach. It is also hard to manage classrooms with many students using the computer simultaneously. The success of netbooks in school depends in large part on teachers' attitudes and their digital skills.” (Santiago, 16, School A)

Finally, our results show that PCI enabled the sharing of digital skills among family members, especially from the lower class. For several families, home access to ICTs was new and unexpected; it was welcomed but also feared to some degree. In several families from School B, students taught their parents how to use the computer and the Internet, starting with basic knowledge such as typing, using the mouse and browsing the web. Lower class youth also commented that they got used to entertaining their younger siblings and relatives with their netbooks, watching movies, playing games and teaching them how to use the computer.

A: “My mom learned to use the computer last year. I taught her how to use Facebook and now she knows more than me! She spends all day at the computer... she even created Facebook accounts for everyone in the family... she knows all the passwords except mine.” (Adrián, 15, School B)

Although many parents from School B have gotten involved with ICTs and developed some digital skills following PCI implementation, there are still several who have never used a computer. According to students' opinion, many parents say they are not interested in learning how to use a computer, others are afraid of breaking the computer, or they believe that they cannot learn, and others are too busy to spend time on these tasks.

Among middle-class students, the arrival of the PCI netbooks did not provoke significant changes in familiarity with computers. However, some adolescents from School A indicated that they have taught their parents or grandparents how to use virtual platforms, especially social networks. This reinforces existing research on how young people are often technology intermediaries between generations (e.g. Sambasivan, Cutrell, Toyama, Nardi, 2010; Winocur, 2009; Global Impact Study, 2013). These findings illustrate the role of “informal infomediary” fulfilled by some of the members of these groups. *Infomediaries* have the ability to express what others cannot experience directly (Dalton, et al. 1998; Deephouse and Heugens 2008), representing, in this case, searching for information online, using social networks and other experiences.

4.3 Computer and Internet Use: The Heterogeneous World of Appropriation

In the previous section we considered the distinctions between inequalities in access and computer use, providing a more detailed image not only of restrictions to access, but also of different forms and trajectories of accessibility and the diversity of IT skills that young people have. In this section, we will explore the shift from the digital access divide to forms of use and appropriation, presenting results that allow us to analyze the significance of social inequalities in the various ways computers and the Internet are used.

There are differences in social class among the students interviewed regarding the frequency and types of computer and Internet use. Although most adolescents from both classes state that they use the netbooks beyond school time, differences emerge when we compare access and the ways they are used. Following PCI implementation, there was a strong increase in home ICT use among lower class youth and, as discussed above, use of cybercafés dropped significantly. In the case of middle class students, there was no noted increase in Internet use at home. However, students that already had a computer at home which they shared with family members, experienced a more personalized and individual use of the computer since receiving their netbook.

The opportunity to have a computer to themselves is highly valued by students. It has also allowed a more intensive and diverse use and, in several cases, the development of new digital skills.

I: “Is there any difference for you between using the netbook and using the desktop?”

N: “Yes... the netbook is only mine and I can use it whenever I want... the desktop belongs to the whole family. I remember I thought that it was going to be my own computer... my first computer and I could do whatever I wanted to because it was mine... I would not have to share it with my brother or my mother and I could take it everywhere without asking for permission.” (Nadia, 17, School B)

A: “I remember the first time I edited videos very clearly. It was summer; my older sister came and asked me “how did you do that?” She was surprised. I explained to her how to use the video editing program and I felt important. I knew how to do something that she did not.”

I: “Why do you think you hadn’t learned it before, on the desktop?”

A: “Because the netbook is only mine, I can use it for multiple purposes and whenever I want to, I can also install software without asking my brother or sister for permission. I am on my own.” (Andrea, 15, School A)

Regarding types and intensity of use, students from both social classes spend most of their time using the computers to communicate, to search for information and for entertainment. The adolescents interviewed all use computers and the Internet intensively (every day, two or three times a week) to listen to music, watch movies and videos, use virtual social networks and browse the web. They also share infrequent use of educational software, graphic editing software (to take and edit photos) and they rarely read the newspaper online. Students frequently chat and search for specific information on the web as well, but here our results reveal a more intensive use by middle class students.

The uses of graphic design software, word processors and email are not the most popular among young people. Nevertheless, we found significant differences in the distribution of these ICT uses according to social class. Students from School A (middle and upper classes) demonstrated a more varied and intensive use of the kinds of programs mentioned, while students from School B tend to play computer games more frequently than students from School A.

With respect to the influence of the PCI on everyday routines, we found a differential impact on Schools A and B. This is because families of students from School A generally already had access to computers and the Internet at home prior to PCI implementation, and there was often one computer for each family member. Thus, the netbook from the public program did not significantly change this. Meanwhile, among families from School B that did

not own a computer or shared one with the entire family, we found evidence that the PCI had a strong impact on daily life. For several parents, the PCI netbooks facilitated their very first contact with a computer, whereas others found it an opportunity to strengthen their digital skills. It has become common for netbooks to be present at family gatherings, used for taking pictures, showing photos or videos, listening to music or entertaining small children.

There have been some changes in the distribution of leisure time among students. Since they spend more time with their netbooks, there is less time for television. This fact seems to reveal a media displacement among young people (Livingstone & Bober, 2005), a hypothesis that should be confirmed with further research. Additionally, cybercafés have practically ceased to be meeting points. Adolescents are once again gathering on street-corners and in squares with their netbooks, which are being used to listen to music with friends. In some cases, students state that they are now spending more time at home—and some even note they have stopped playing sports. At the same time, they feel they have more contacts, which provides them with a sense of belonging and of “being up-to-date” with the trends in new technologies. However, some other students claim to have maintained their usual times and spaces for leisure, circumscribing the use of the netbook to home life.

Another impact netbook use has had on daily life was noted among female students interviewed, particularly from the lower class (School B). We found that in many cases, female students stated that their household chores have become more bothersome since they want more time to use the computer.

I: “What do you do in your free time, when you are not at school?”

M: “Before having the netbook when I was bored I used to take a nap... now instead I use the netbook, play games or log into Facebook.”

I: “Is there anything that you have stopped doing since you got the netbook?”

M: “Yes... when I’m using the computer I don’t want to do certain chores at home, like washing the dishes... it puts me in a bad mood, I get angry. I don’t want to be bothered while I’m using the computer.” (Mercedes, 16, School B)

This is an important point since a comparative analysis by gender reveals inequalities in computer appropriation between male and female lower class adolescents and the PCI does not seem to have modified this trend. There are no significant differences in the ways that male and female youth distribute their screen time, but the former tend to have more time and consequently engage in more activities. So, among lower class adolescents, there is a gendered digital divide related to the unequal distribution of household chores (such as cleaning, cooking and looking after siblings).

4.4 Modalities of Virtual Social Network Appropriation

One way to approach ICT appropriation by the subjects in question is through an investigation of the motivations behind their technological practices. Thus, in this section we will approach the objectives of computer and Internet use by young people as well as their choices and frequency and intensity of use of particular platforms.

Our findings show that all the students interviewed use virtual social networks very frequently. The fact that the majority report using computers for “entertainment” and/or “communication”, suggests that, similar to other age groups, ICTs are mainly used by young people for leisure activities and free time, and that the Internet and social networks are strongly associated with these activities. During the interviews, almost all students from both schools indicated that the main advantages of owning a computer with an Internet connection was the access to meaningful information and the possibility to connect with friends quickly and easily, as well as meeting new people from further away. Adolescents emphasized that

thanks to the Internet and social networks they were able to learn about artists, music groups, fashion, soccer players and also school gossip, parties, meetings and shows.

A: "If I didn't have my netbook I wouldn't find out about anything... I wouldn't be connected with my friends and that kind of stuff. I have friends that live far away and I don't see them very often. I keep in touch with them through online social networks." (Adrián, 15, School B)

Regarding differences in social class, all the students interviewed had Facebook accounts, but only a few lower class adolescents had Twitter accounts. This percentage increases significantly in the case of upper-middle class adolescents. Moreover, several of the interviewees mentioned that their use of social networks or online platforms was related to how meaningful these platforms were for their group of friends and schoolmates.

I: "Why did you first go to a cybercafé?"

T: "I don't know... a friend of mine wanted me to go, to show me how it was. And then I started going more often. At first I didn't understand anything about using a computer, so I thought it was really boring."

I: "And why did you keep going?"

T: "Because I got addicted! (Laughs.) No... Actually it grabbed my attention. Everybody was online, chatting, surfing the web. Everyone around me was using the Internet, so I think I liked it because it allowed me to be more connected." (Teresa, 17, School B)

C: "I began using Twitter recently. All my friends had it and convinced me to get it too. At first I didn't understand much but then I began to learn more (...). For a while, I closed Facebook and Twitter because I'd become a little addicted, but then I couldn't keep in touch with my friends because they all use it and I had to reopen my accounts." (Celeste, 16, School A)

According to some adolescents, especially from School A, digital devices like smart phones with Internet connections make it easier to use Facebook and Twitter, for instance, without being in front of a computer. This is seen as an advantage by adolescents. For middle class youth, their daily lives are organized according to careful time management with plenty of activities (dancing, soccer, basketball, English classes) which fully engage them during the day. These activities are generally organized using ICTs, in combination with other forms of communication, which they find useful because of their efficiency (both in terms of time and cost). There is also a noticeable and growing trend of migration from Facebook to Twitter, accompanied by increased access to smart phones with high-speed Internet connections.

5. DISCUSSION

The main findings of our research indicate that ICT access trajectories are heterogeneous and unequal among youth from the lower and middle classes. While the latter have grown up surrounded by technological devices, ICT access for lower class adolescents is relatively recent. These results coincide with several previous national studies which found that lower class adolescents tend to have their first contact with computers and the Internet later on and mainly in public access places, such as schools or cybercafés (Urresti, 2008; Benítez Larghi et al., 2011).

Moreover, data from fieldwork shows that Internet access is universal among the middle class youth interviewed and there are usually several computers in their homes. However, not all of the lower class interviewees have an Internet connection at home. These findings match literature suggesting that lower income sectors have fewer possibilities for connectivity at home, and that when this access does exist, it is limited, with only a few having a broadband connection (Anderson, 2005; Sorj & Guedes 2005; Cristancho et al., 2008).

Results from our research demonstrate that PCI implementation has improved computer possession among lower class students. Moreover, the arrival of the PCI encouraged several families from School B to install an Internet connection at home. In this context, as observed in our research, the greatest impact of the PCI in terms of access has been among lower class students who did not have a computer before the program or only had one device shared by the entire family. Thus, we can state that the PCI has made an enormous contribution to decreasing the first-order digital divide.

Outcomes regarding digital skills among students show that before the implementation of the PCI there was a notable contrast between lower and middle class students. Our results concerning lower class adolescents reveal similar patterns to those described in the literature, which show that low-income sectors have difficulties in access, use computers and the Internet less intensively and have more basic digital skills. As Livingstone and Bober (2005) state, digital skills are “inherited” by social class, since those adolescents whose parents use computers and the Internet intensively have more chances of being expert users themselves. As described in previous sections, since the PCI was first implemented, students from School B have gained new digital skills, increasing their abilities substantially. In this way, an important part of the second-order digital divide between lower and middle class students has decreased. However, although the implementation of the PCI has enabled many lower class students to develop new and more varied digital skills, our research shows that initial digital inequalities and unequal social positions interfere in the development of certain digital skills.

Moreover, since PCI implementation, schools have become a place where meaningful ICT learning can take place, depending on teachers’ digital skills and attitudes towards netbook use in the classroom. Results suggest that groups of friends play an important role in the development of new digital capabilities. In sum, since the PCI was first implemented, there has been an increase in the importance of school as an institution for learning computer skills, and to a lesser extent, how to use the Internet. This tends to decrease the second-level digital divide.

Findings regarding the sharing of digital skills among family members suggest that many lower class parents started learning how to use a computer after the PCI was initiated. At the same time, other parents, especially from the lower classes, are not interested in learning how to use a computer for multiple reasons. Given that there are computers in these homes, this situation can be described as digital poverty (Barrantes, 2007) and attributed to different explanations, such as a lack of interest and time or generational and educational barriers.

With regards to ICT use, the PCI has enabled a more intense home use among lower class adolescents who did not previously have a computer at home. It has also enabled personalized and individual use of the computer for young people who already had a computer at home. Moreover, school has now become a place to use ICTs frequently and, in several experiences, develop digital skills. Although the increase in computer and Internet use at home among lower class students has almost reached the levels seen in middle class students, inequalities persist in terms of the types and variety of computer and Internet use. The main differences of ICT appropriation among students were related to a less intensive

use of spreadsheets, text editing and graphic presentation software. This dissimilarity may be related to the unequal distribution of digital skills among youth. From data collected, we can suggest that interest and motivation are the factors that most affect how intensively devices, platforms or software are used. As the results show, lower and middle class students use online social networks, chat, web pages and entertainment platforms in almost the same proportions.

With respect to the various kinds of computer and Internet use, recent studies (Ellison and Boyd, 2013; Dussel, 2012; Weber and Mitchell, 2008) have shown how American middle class youth who have computers with an Internet connection at home, use social networks to enhance their opportunities for communication and socializing. This allows them to generate a proliferation of social ties which is unusual among those accessing the Internet from places like schools, libraries or cybercafés. As described in previous sections, both lower and middle class adolescents are frequent users of online social networks, allowing them not only to strengthen bonds with people they already know, but also to meet new people with whom they have affinities, even if they live far away. People from nearby cities, but also from other provinces and countries, form part of an extensive network of contacts established through the Internet which allow them to experience other realities and forge weak but significant ties (Granovetter, 1973), or contacts, and strengthening identities and social belonging, thereby contributing to the acquisition of social capital (Bourdieu, 1988).

According to specialized literature, adolescents from both genders consider social networks as a space for interaction, a place to meet, show and express themselves (Sibila 2008; Mallan, 2009). As seen in local as well as international literature on the topic, these platforms are used by adolescents on a daily basis as a relationship-management device for their group of “friends”, as a space and means for managing group dynamics (Balardini, 2012). Our results show that young people from Schools A and B consider online social networks as very useful, not only for keeping in touch with friends and schoolmates, but also to obtain important and meaningful information on places, their interests and activities that are of great importance for their social group. Therefore online social networks are important because a significant proportion of students’ social lives take place on the web.

Even though the difference in social network use among students described in the previous section suggests that students from School A display more diversified uses in contrast with lower class adolescents, we have also found that among the adolescents interviewed, certain devices, virtual platforms and social networks are trendy while others quickly become “old fashioned”. Virtual social networks and web platforms, such as YouTube appear to be an extension of adolescents’ social space, where they interact daily. Therefore it can be suggested that particular platforms and online social networks end up being fashionable among youth, not only when they become significant for a certain group but also when they require economic resources in order to own or use a device with an Internet connection.

With reference to the analysis of different uses of computers and the Internet, there are, in general terms, two positions in the current literature concerning young people and new technologies. On the one hand, there are those who propose that the use of new technologies constitutes a valid resource for strategies fostering social integration, which in certain situations can help reduce social inequalities and strengthen individual agency (Martín Barbero, 2009; Sunkel, 2010; Vila, 2010; Winocur 2007, 2009). On the other hand, some researchers believe that restrictions on ICT use and appropriation simply reproduce the effects of symbolic domination and erode subjectivities (Turkle, 2011; Sibila, 2008, and others). Our findings show that unequal social positions among youth are related to unequal access to ICTs. Moreover, among the adolescents interviewed, having their own personal computer not only ensures material access but also provides them with new opportunities to

access symbolic goods, deciding how to spend their free time and do their homework, searching for meaningful information and communicating with friends and family. For those students who did not have a computer at home prior to PCI implementation, access to ICTs potentially fosters more equality. Similar findings were introduced by Rivoir et al. (2010) in the case of “Plan Ceibal” in Uruguay and by Hinostroza and Labbé (2011) regarding the public ICT access policy “Programa Enlaces” in Chile⁸. Consequently, results from fieldwork show that public policies like the PCI can contribute to alleviating digital inequalities not only in terms of material access, helping to reduce the first and second order digital divide, but also by enabling ICT appropriation that tends to decrease symbolic inequality among youth and their families.

6. CONCLUSIONS

Digital inclusion through public policies mitigates social inequalities and their distorting effects on the spread of technologies. Even though the results and findings of this research should not be extrapolated to the general population given the exploratory and qualitative perspective of our methodology, they confirm what has been addressed by other authors, such as Ito et al. (2010), Rivoir et al. (2010) and Winocur (2009). Therefore, these results can offer a theoretical contribution to knowledge based on empirical evidence regarding ICT appropriation and inequalities.

Firstly, with respect to the concepts of the digital divide and digital poverty, this research contributes to studies of digital inequality generating new qualitative indicators. For example, in terms of access, it is essential to look at not only access and connectivity conditions but also individual and family histories, including the length of time that ICTs have been used at home, the places where ICT skills are shared, and the actors or subjects who play an important role in teaching ICTs. Conditions of access are understood not only as a static image, but also as an ongoing process. According to Ito et al. (2010: 345), basic access to technology, the ability to navigate online information and to communicate with others online, are increasingly central to our everyday participation in public life. At the same time, the range and diversity of networked forms of public participation have proliferated dramatically, making the definition of baseline technology access and literacy difficult, if not impossible, to achieve.

Secondly, interesting findings regarding youth ICT appropriation suggest that “participation in online communication and gaming is becoming central to youth sociability” (Ito et al., 2010: 346). We consider it necessary to contextualize ICT appropriation in terms of daily life in order to understand how certain technological practices become socially significant for some social groups but not for others. For example, with respect to forms and types of use, the data gathered suggest that there are also social class differences which allow us to formulate the following hypothesis about the “choice” of digital platform use. According to Lahire (2004), youth from different social sectors are subject to different kinds of restrictions on a daily basis that lead them to find alternative ways to make use of resources and skills. For instance, upper-middle class adolescents are often committed by their parents to endless extracurricular activities (such as different sports activities, music, dancing, and studying languages). The data suggests that the social network of choice, such as Twitter, for these adolescents is partly due to the fact that this platform adapts more effectively to their use of time. Unlike other social networks, such as Facebook, which imply another temporality of use, Twitter emerges as a more agile and dynamic platform, enabling

⁸ Hinostroza and Labbé (2011) and Rivoir et al. (2010) suggest that symbolic equality has occurred not only for children and adolescents that did not have a computer at home before the programs, but also among students from public and private schools.

those users who have Internet on their mobile phones to stay “online” easily while continuing in their daily routines.

Therefore, seen as a whole, along with what was stated previously, we can assert the relevance of social class and gender inequalities in forms of access, and individual and family experiences of technology use.

In turn, based on the results of our research, we propose the following suggestions for public policy makers:

- Public policies that foster Internet access both at school and at home should be developed, giving special consideration to economic restrictions for lower class families.
- Teacher and student training should be encouraged, providing tools to those who are already motivated and incentivizing those who appear to be more reticent. This could be implemented by inviting young students to form part of educational software design projects.
- Sharing digital skills with family members in lower class contexts should be promoted and encouraged and specialized materials and workshops for parents should be offered.
- New platforms should be developed that combine aspects of education and entertainment, taking into account youth preferences, choices and uses of social networks.
- Given the gender inequalities among young people, educational strategies could be implemented in order to encourage female adolescents to develop new and meaningful ICT skills that help enable them to continue their studies and/or get well paid and satisfying jobs.

Finally, our findings show that even though ICT access is becoming universal among young people, different kinds of inequalities persist. The question, now that ICT access is increasing, is how these inequalities are evolving and what “new inequalities” are developing, those pertaining to new digital devices, for instance. Additionally, we believe that although the access divide has significantly decreased over the past years and young people are now “less unequal” (in material and symbolic terms) than before, unequal ICT appropriation is ongoing and will result in long-term inequalities (with respect to employment and high school studies, for instance). With this in mind, new research is needed to address the ways in which these effects emerge and are experienced by young people and how they can be changed through specific public policies.

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