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"Public Policies on Media and information literacy and education in Latin America: Overview and Proposals"

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1. Public education policies in Knowledge Society: trends in Latin America

Which are the general characteristics of current public policies for Media and Information Literacy (MIL) in Latin America Knowledge Societies? Which are their priority areas? How do they respond to the Latin American citizens´needs? This paper revises briefly the state of the art in public policies and strategies in this area in Latin America, using desk research methodology. The selected case studies are Argentina, Brazil, Chile, Colombia, Mexico, Peru, and Uruguay. The identified tendencies in the diverse models are then compared. Based on these reflections, the authors suggest proposals to be considered in the implementation of public policies for MIL in Latin America Knowledge Societies.

These countries were chosen as case studies, among other reasons, because of their position in the Internet Penetration Index (Internet World Stats, 2012): Argentina (67%), Chile (59%), Uruguay (56%), and Colombia (56%) have the highest index in the region. Mexico (37%) and Brazil (39%), have not the highest index in relative terms, but they do in absolute terms, given that they are the largest and most populated countries in the region. From the 40% of Internet penetration in Latin America and the Caribbean (LAC), 30% corresponds to Brazil, and 16% to Mexico. In the case of Perú (34%) its index is not among the highest, but it was one of the first LAC countries to implement initiatives towards MIL and e-inclusion, which were later replicated in other countries.

The emergent Knowledge Societies conform a virtuous circle, in which the progress of knowledge and technological innovations, mutually determined, generate further knowledge and technological innovations in the medium and long run. As a consequence, knowledge production and knowledge-based social, economic and political practices undergo a considerable acceleration (UNESCO, 2005). Nevertheless, information and communication technologies (ICT) tools are a necessary but not sufficient condition for developping Information Societies.

Issues concerning information and knowledge are related to other national strategies. Their transdisciplinary nature makes them transversal to other subjects (e-government, e-health, education, security, etc.), as well as to a number of social agents: government, private sector, universities, NGOs. Consequently, Knowledge Society issues are also at the base of the transformations in the economic and social organizations in the countries that implement National Information Society Policies - NISPS (Finquelievich et al., 2009).

Latin America and the Caribbean (LAC) is an up to date region concerning NISPS. No country lacks a National Digital Agenda; some LAC countries (Chile, México, Uruguay), are workimg on second generation NISPS (Finquelievich et.al., 2009). In the case of information and media literacy (MIL) governments face a series of urgent needs concerning the inclusion of teachers and students to Information Society, physical access to computers and connectivity, the need to train teachers for the effective use of ICT in schools, and to qualify human resources to have access to the new labour market. In most countries, the responsible agent for meeting these

needs is the State, both as technology provider, and as a generator of educational strategies to use ICT.

The approaches through which diverse LAC countries face NISPS focused on education, and MIL, vary according their economic trends, the existing educational systems, the links between education and the Science, Technology and Innovation systems, the identified needs, and overall, the ways in which each country stands or wishes to stand in Knowledge Society.

2. The History of Digital Literacy policies in Latin America

UNESCO (2002) states: "Literacy goes beyond reading and writing; it also consists in knowing how to communicate in society. Literacy includes practices and social relations, including knowledge, language and culture. Literacy understood as the use of written communication, find its place in our lives alongside other ways of communication. Indeed, literacy itself takes many modalities: print, computer screen, on television. Those who use literacy, use to consider it as something already given, but those who can not use it, are excluded from communication in today's world. "

Latin American countries have soon realized they needed to create public policies for digital inclusion of its citizens. As recalled by Silvera (2005), among the guiding principles adopted by the signatories of the "Bavaro Declaration", a result of the regional ministerial conference held in January 2003, and preparatory to the assistance of Latin America Summit World Information Society are:

- "(...) Emphasize the education of key users of information technology and communication: teachers, civil servants, doctors, nurses, community leaders, among others. Incentives should be established to encourage adaptation to new ways of communication and interaction. It would be convenient for countries who strive, to minimize the common problem of "skills mismatch", by actively seeking suitable professional profiles and constant updating of textbooks. "
- "The social and economic progress of countries and the welfare of people and communities should play a central place in activities to build an information society. The use and benefits of ICT are essential to meet the needs of individuals, communities and society in general. "

UNESCO´s "Regional Education Project for Latin America and the Caribbean" (PRELAC) is based on similar criteria, and aims to stimulate significant changes in public policy to enforce the proposed "Education for All", in order to meet the demands of human development in the region in the XXI century. This document discusses the results of the efforts made by UNESCO in this area over the past 20 years and states that according to the latest information, there is a significant body of outstanding issues or deficiencies that affect education in the region (Silvera, 2005).

3. MIL governmental programs in Latin America

ARGENTINA

Argentina develops since year 2010 the National Program “Conectar Igualdad”. Its goal is achieving information and media literacy for the country´s population. This program is based on two South American precedents: Chile´s Centro de Educación y Tecnología, Enlace (Center for Education and Technology), created in 2005, that has reached 95% of the primary schools with computers, of which 75% have broadband connectivity. Enlace is a comprehensive policy which includes school equipments, teachers´training, technical assistance to schools, and extension of MIL to the community. Another precedent is Uruguay, with Plan CEIBAL, a socio-educational project whose main beneficiaries are 1º to 6º year students in State primary schools. XO portable computers, designed by One laptop per Child (OLPC) project, have been distributed to them. The program has allowed the extension of the wireless connectivity network. Both Chile and Uruguay cases are described later in this paper.

Conectar Igualdad grants democratic access to technological resources, reaching all the public secondary schools in Argentina, both in urban and rural areas. The Program is developed by the Argentine Republic Ministry of Education, the Social Security National Administration (ANSES), the Ministry for Federal Planning and Public Investment and Services, and the National Executive Cabinet´s Head. Its goal is to distribute 3 million netbooks to secondary school students and teachers, special schools, and Institutes for Teacher´s training. Until May 2012 the Program has delivered 1.800.000 noteboks, and trained more than 472.242 teachers with semi-presencial courses. In two years the Program has achieved more than half the proposed scopes. These computers can be used both at school and at home.

The program “Conectar Igualdad” consists not just on the distribution of personal netbooks to teachers and students, but on other main goals: the creation of a “technologic floor” that connected servers, in order that all schools will have access to the Internet and create internal networks; the generation of digital contents; and the development of a Federal training system for teachers on ICT use for schools. “Conectar Igualdad” and the “Educ.ar” platform, integrate the National Median and Information Literacy Campaign.

Concerning the creation of technological floors, the Ministry for Federal Planning and Public Investment and Services is developing the Program “Argentina Conectada”. Its main goal is to “generate a digital infrastructure and services platform for the government and citizens´connection”. One of the Plan's main cores is the construction of an optic fiber network that will reach first the areas which are lacking digital infrastructure. Public digital equipments to access ICTs are also being implemented: Nucleus for Access to Knowledge (Núcleos de Acceso al Conocimiento - NAC), and Digital Access Points (Puntos de Acceso Digital - PAD). These initiatives are oriented to provide connectivity in public parks, recreation centres, Community Integration Centres (CIC), Popular Libraries, and to train citizens in informatics skills.

The educational platform Educ.ar provides the digital resources needed to implement the 1 to 1 model. It works as an assistant for teachers and directors of educational institutions to help them incorporate ICT in their teaching practices. Until May 2012 Educ.ar has created 20 tousand educational contents for all the disciplines in secondary school. The interaction between Educ.ar and Conectar Igualdad is meant to favour networking, encourage the students´ production of contents, include these contents in projects, and finally, edit, articulate and disseminate these contents.

In Argentina there are other regional and local MIL initiatives which distribute computers to implement the 1 to 1 learning model; some of them have even preceded Conectar Igualdad. Some of them are: “Todos los Chicos en la Red”, and Public Digital Schools, both in San Luis Province; Program Joaquín V. Gonzalez, Province of La Rioja; AU Project, Province of Buenos Aires, and Plan Sarmiento in Buenos Aires City. The San Luis Province is a pioneer case in the implementation of connectivity and MIL policies, as well as in the training of human resources for the ICT labour market. In 2008 the Province´s Government launched the Digital San Luis Plan, meant to implement MIL and e-inclusion throughout its territory[1]. At present, Plan San Luis Digital has allowed the Province to have 95% of Internet penetration; 100% of primary scholl students are included in the 1 to 1 learning system, and 95% of the teachers are trained in ICT use for educational means[2].

These educational policies goals do not stop at MIL and e-inclusion: they are meant also to revalue public education, build a comprehensive digital inclusion policy, and train qualified human resources to work at ICT enterprises, which currently have difficulties to engage enough skilled staff.

BRAZIL

Brazil has been a pioneer in Latin America in the development of information society and innovation, since the publication of the "Livro Verde" ("Green Book"), from the Program of Information Society in 2000, which defined the objectives of democratization and universal access to Information Technology, during the government of Fernando Henrique Cardoso (1995/2002). The government of President Luiz Da Silva ("Lula") deepened the path taken earlier, and created the GESAC, Ministry of Communications and coordinated by the Department of Infrastructure for Digital Inclusion in 2003, which aimed to provide access to ICT to people of high social vulnerability.

Since 2005 Brazil became interested in social inclusion programs of education, through contact with Nicholas Negroponte, founder of One Laptop per Child (OLPC). Since then, there were created two organizations: “Fundação de Apoio em Tecnologia da Informação Capacitação

[1] http://www.chicos.edu.ar/ChicosEnRedasp/paginas/pagina.asp?PaginaCRID=1

[2] http://www.ulp.edu.ar/ulp/paginas/PrensaULPDetalle.asp?IdiomaId=1&Eje=9&InfoPrensaId=3521

(FACTI)" -Foundation to support and educate in Information Technology- and "Financiadora de Estudos e Projetos (FINEP)" -Funder of Studies and Projects- in charge of adapting the form 1-1 to the specific conditions of the country.

The main objective of the project One Computer Per Child (UCA), created in 2009 is the total coverage of primary and secondary schools, about 37 million students, with a total budget of 660 million dollars. The Presidency of the Republic in conjunction with the Ministry of Education of Brazil, are responsible for carrying out the project, along with all the municipalities in charge of procurement and distribution of equipment in its territory. Until now (May 2012) computers have been distributed in 350 schools, 42,680 institutions, 16,939 State institutions, 25,533 municipal schools, 198 UAB poles. The total amount distributed is 350.000 machines; each Ministry of Education decides whether or not students can take the PC to their home.

In a pilot project on 300 schools, some difficulties were found related to the technical aspect of the program, basically multiple and simultaneous wireless access points in a single educational establishment. Therefore, it is planned to equip the schools with intelligent devices to balance access to Internet, as well as the use of various devices such as Tablets.

The UCA program calls for decentralization in the context of a densely populated country and a large land area (8.5 million km2). For that purpose, it has implemented a system which has four portals to unify values, pedagogies and methodologies across the country:

1. The Teacher Site, a virtual space where teachers come together to articulate contents, training and management tools for learning.
2. The International Bank of Learning Objects, a project that provides learning objects, such as simulations for the Sciences, so that teachers can download them and modify according to their specific objectives. There are in total 12,744 published objectives.
3. The Student Site, destined to students in order to have access to digital content, build communities and establish a permanent communication with teachers and peers.
4. The Virtual Learning Environment, which aims to include universities as providers of knowledge.

In UCA Trabalho Group (GTUCA) -UCA Work Group- specialists in the use of ICT in education, are responsible for assessing, training and research, aiming to transfer knowledge from universities and research centers to public policy makers and impact assessments in order to enhance strengths and overcome weaknesses of the program.

The program One Computer Per Child (UCA) has as main goals: "To be an educational project using technology, digital inclusion and the density of commercial production chain in Brazil"[3]. Along these lines, we propose the inclusion of the social sectors most vulnerable to the network society, educational innovation and improvement in the quality of the education system through substantial four lines: Infrastructure, support and coaching, Training, Evaluation, and Research.

[3] http://www.uca.gov.br/institucional/projeto.jsp.

CHILE

Chile has been concerned with connectivity, equipment and use of technology in schools since 1992. Several initiatives have allowed for 2010 that each school has a computer connected to the Internet for every 10 students. Since 2009, the government of President Michelle Bachelet launched the Mobile Computer Laboratories (CML) inspired by 1 to 1 models, providing computers to students in third and fourth grade of all municipal primary schools, every day and part-time during classes. Mobile Laboratory Computational considered a netbook for every student in the classroom and another laptop for the teacher. The equipment includes a mobile container that allows the transfer of netbooks into the classroom, storage, security, battery charging equipment, and communication between computers through a local wireless network.

The institution that develops the plan is the Education and Technology Center Links, under the orbit of the Ministry of Education of Chile, who has equipped 1500 schools until May 2012. The projection of the plan reaches to 250 000 students, distributing 2.000 mobile equipments: a mobile cart carrying computers, plugs, and electronic equipment that can be shared by up to four courses. The current coverage is 50,186 students; there´s no data on the number of trained teachers yet. Chile´s enrollment is 3, 5 million students. The program reaches only 7%, of the registered students, in third and fourth grade of the primary school.

The LMC project is not focused on solving the digital gap, as are many of these programs in Latin America. Its main objective is to ensure ICT based learning towards PISA skills. It prioritizes educational quality over equality of opportunity. It should be remembered that Chile is one of the Latin American countries with highest Internet penetration (59%), behind Argentina (67%), so many students have computers at home. The pedagogical approach is similar to other countries using 1 to 1 teaching models. Teachers are trained regularly and there is a permanent tutor in each school. From 2011 teacher training in educational resources and computer support have intensified.

The LCM project and Enlaces is not the only ICT access program. Full connectivity broadband is expected to be achieved by 2014, and the Ministry of Education is permanently working to improve and create new digital contents for education. Chile also has its educational platform "Educarchile[4]" directly related with Enlaces and LCM. The portal does not only provide contents and communication between teachers, but it also provides an "emotional support and self-care" section, as well as a specific sector for Innovative Teachers.

COLOMBIA

The Ten-Year Education Plan 2006-2016, "Vision 2019" document, and the National Plan of New Information and Communication Technologies, are clear signs of Colombia´s commitment to modernize education and to position the country closer to the new world order. To achieve its

[4] http://www.educarchile.cl/

purpose, the agenda raises objectives centered in three main approaches: the community, the productive sector, and the state, in line with the three pillars on which knowledge society is promoted: family and everyday life, new economy and labor and policy in the Knowledge Society.

Specifically, the objectives proposed in the Agenda for Connectivity in the three described approaches are:

> "Community: Encourage the use of information technology to improve the quality of life of the community, offering equal access to educational opportunities, labor, justice, culture, recreation, etc."
>
> "Productive Sector: Promote the use of Information and Communication Technology to support growth and increase competitiveness, access to markets for the productive sector and reinforce policies for job creation"
>
> "Statement: To provide connectivity to the State to facilitate the management of government agencies and support the role of citizen service"

In terms of strategies to achieve these purposes, a benchmark that can be seen in the project is led by the Ministry of National Education called “A que te cojo ratón” (“I´ll catch the mouse"), destined exclusively to teachers from educational institutions, in an attempt to bring teachers to use ICT in their educational work. Moreover, in Bogota were developed strategies such as "Digital Classroom", aimed at promoting digital literacy to levels 1, 2 and 3; the "ICT Program Massification - ETB", whose main objective is to prioritize initiatives of universal access to the population of levels 1, 2 and 3, by promoting the creation of telecentres or ETB Interactive Websites.

The Government of Colombia is committed to a National ICT Plan 2008-2019 (PNTIC) oriented to make that all Colombians become informed and communicated by efficient and productive use of ICTs, to improve social inclusion and increase competitiveness. To achieve this goal, the Plan proposes a set of policies, actions and projects in eight main areas: four transverse (Community, Regulatory, Research, Development and Innovation, Government Online), covering issues and programs that impact on different sectors and society groups, and four vertical (Education, Health, Justice, Competitiveness), which relate to programs that will allow to achieve better ownership and use of ICT in priority sectors for this Plan. The Plan emphasizes three key aspects to be undertaken in the short term, due to potential impacts on the mass of ICT in society: improving access to infrastructure, help the widespread adoption of ICT in SMEs and consolidate the process of government in line. For the implementation of PNTIC it will be necessary to establish alliances and collaborations between government, private sector, academia, the scientific community and civil society.

Meanwhile, the Ministry of Education performed a 1 to 1 pilot project with the donation of 1500 Intel computers, started in 2007. The project included teachers´ training, designing lesson plans

and the selection of contents. Furthermore, activities addressed specifically for parents were developed, to complement the project. As pointed out by Gomez Merly, adviser to the Office of Educational Innovation Using New Technology of Ministry of Education of Colombia, the country's basic interest is to facilitate access to ICT tools to the students decreasing the number of students per computer, which is currently 20 children per team to 12 kids per computer in the coming years. To do this, different scenarios are used, taking into account the diversity of the country, including the use of digital dashboards, computer rooms, mobile classrooms, etc.

Since 2008 Colombia is working on an initiative for teacher´s training called the "path of ICTs appropriation" which seeks to develop teachers´ skills (communicative, collaborative, educational, ethical, technical, technological, managerial). It includes two specific phases: personal appropriation of ICT skills, and professional appropriation, which involves the development of competencies for the educational use of these tools.

MÉXICO

Mexico´s digital agenda (2010-2015) defines as a main goal to reduce the wide digital gap in ICT access and use, as well as in MIL. According to the 2010 national census, of a total of 112 million inhabitants, 68 million (61% of the population) do not use the Internet. The Internet penetration reaches 37% according to Internet World Stats, 2012[5]. The main causes of this gap are connectivity´s high costs, and the social vulnerability of large sectors of the population. Moreover, there are also deep deficiencies in the communication infrastructure. Also, a significant sector of the population lives in rural or remote areas, which are marginalized from connectivity.

At present the Secretariat for Communications and Transportation (SCT), the Ministry of Education, and the Ministry for Social Development are implementing three programs intended to reduce the digital gap and take it to OECD levels in year 2015:

a) Habilidades Digitales para Todos (Digital Skills for All, 2010-2012) addresses primary school students, in order to use ICT in the learning process, and to develop digital skills.

b) Campaña Nacional de inclusión Digital Vasconcelos 2.0, (Vaconcelos National Campaign for e-inclusion) intends to mobilize young students who are already skilled in ICT use to reduce the digital gap in socially vulnerable adults.

c) Centros Digitales Comunitarios E-méxico (E-Mexico Community Digital Centres, CCD) implements digital community centers in rural areas. E-México has created more than 3.200 CCD throughout the country, where people can have free access to the Internet.

One of the main goals of Digital Skills for Al is to encourage ICT use among teachers, students, school directives, and parents, since the program´s principle is that the implementation and

[5] http://www.internetworldstats.com/stats10.htm

development of digital resources in the educational system will have deep positive impacts in the communities. In order to achieve this goal, the Program has created Thematic Classrooms, equipped with a server, 20 connected laptops, and Internet access for secondary school students. Primary schools have received a computer connected to the Internet per each 30 students in 5º and 6º grade[6].

The Vasconcelos Digital Campaign 2.0, developed by the Coordination of Information and Knowledge Society of the Secretariat for Communications and Transportation intends to mobilize between 200 and 300 secondary and university students to teach MIL to 30 million illiterate adult Mexicans years in 5 years, throughout the country. In exchange for their tasks, the young voluntaries will receive professional education, and training to undertake future initiatives.

In 2006, more than 10.000 Digital Community Centers were distributed throughout Mexican States. Their goal is to provide connectivity, Internet access, and MIL to Mexicans. The projection for year 2012 is 24.000 DCC, mainly in remote and marginalized communities. Other goals are to promote innovation and develop a higher collaboration between scientific and technological activities though this network.

PERÚ

From 2008 onwards, the General Director of Education Technology, at the Peru Ministry of Education has developed the program "One Laptop per Child" aimed at delivering 600.000 computers to students and teachers of primary schools in rural, extremely poor communities. The program's main objective is to reduce the huge gap between urban and rural schools, many of them located in remote areas, where one single teacher works with several school courses, lacking educational materials and access to technology.

The Ministry of Education has distributed 513,204 computers and has trained over 5,144 teachers, and plans to extend the program to secondary schools. The XO model computers provided to students can be taken home to be shared with families and friends, in order to socialize the computers´ use and increase their impact on the communities.

There is a second stage of the program, which seeks to improve the use of computers in urban areas where most people have a PC and can access to connection. In this case, schools have several teachers, and the use of XO laptops are intended to socialize, as well as the equipment is delivered to each school and not to each student or teacher. For this purpose, Technology Resource Centers were created to share the use of machines and employ other technology resources such as mobile Internet, robotics, etc. Stage Three, implemented since 2011, seeks to extend the application of the high school program, providing a quantity greater than 600 000 laptops for the end of 2012. The characteristics of this phase are exactly the same as the second stage, but at secondary school level.

[6] http://basica.sep.gob.mx/HDT/start.php?act=preguntas

The program "One laptop per child" is different in Peru from the rest of the other studied LA countries. In the case of Peru, only a third of schools have Internet access, and there are many rural schools which cannot use digital resources for lack of electricity. For this reason, 200.000 solar panels have been distributed to one-teacher schools so they can charge the batteries of computers and enjoy connectivity. Therefore teachers receives a USB device with digital content developed by the Educational portal "Peru educa[7]" so they can simulate navigation and access to updated information.

URUGUAY

In Uruguay, the creation of the Agency for E-Government and Information Society (Agencia de Gobierno Electrónico y Sociedad de la Información, AGESIC) in 2005 strengthened NISPs. The main strategic lines of the Uruguay´s Digital Agenda (2011-2015) are: Equity and Social Inclusion, Citizens´participation, Modernization of the State, Impulsing Education, Innovation and Knowledge generation, Territorial Integration; and International insertion.

Uruguay was one of South America´s pioneer countries in MIL policies, through the implementation of the Plan for Educational Connectivity of Basic Informatics for Online Learning (Plan Ceibal) using the 1 to 1 model. This Plan was launched in 2006 by President Tabaré Vázquez´ government. Its goal is to grant educational quality and equality, through the decrease of the digital gap, both within the country, and in relation to other countries, distributing 670.000 laptops to primary and secondary school teachers and students. Plan Ceibal´s organization and development involves the Ministry for Education and Culture (MEC), the National Administration of Telecommunications (Antel), the National Administration of Public Education (ANEP), and Uruguay´s Technological Laboratory (LATU).

Plan Ceibal has three main components: pedagogical contents, social and digital inclusion, and technological, focused in the distribution of personal laptops. The Plan was developed in successive phases. It started in the Florida Department[8] (2007), reached all the Departments by year 2008, and continued in Montevideo and its metropolitan area (2009), covering 100% of primary schools. In 2010 Plan Ceibal provided computers and training to private educational institutions, and on the basic cycle of secondary schools (from 1st to 4th year). Until May 2012 the Plan has delivered 450.000 laptops, 67% of the initial number, and has trained 26.000 teachers. The informatic equipments are provided with software and an operational system which have been specifically designed for children (XO). Internet is accessed by wireless connectivity. A number of connected schools are equipped with antenna which in turn provide connectivity to nearby schools. There are at least wifi zones in the country.

[7] http://www.perueduca.edu.pe/web/visitante/inicio

[8] Uruguay is organized in Departments instead of States or Provinces.

Besides Plan Ceibal, Uruguay has implemented the Educational portal Uruguay Educa[9] , a pedagogical initiative providing educational resources, blogs, forums to register learning experiences, contests, and technical support, among other applications. Its goal is to encourage users to upload their own contents to the platform. The Universidad de la República has implemented the project "Flor de Ceibo" in order to generate knowledge for Plan Ceibal, training students who work in research, teaching, interdisciplinary work, etc.

4. Common traits and differences

NISPs for MIL in Latin America have a common root: the need to reduce or abolish the digital gap, both within the countries, and in their relation to developed countries, as well as to rise their e-inclusion, granting democratic access to ICT to all the citizens. Most of these policies are integrated into the countries´ Digital Agendas, and were first conceived between 2005 and 2010. This data suggests that by the Century's early second decade, a large proportion of LAC population is still digitally illiterate.

This is the reason why all the programs described earlier in this work explicit their goals about MIL related to e-inclusion:

> *"We search to promote digital inclusion, aiming to diminish the digital gap, both in relation to other countries, as among the Uruguayan citizens, in order to enable a larger and better access to education and culture" (Plan Ceibal)*
>
> *"It is an Argentine State policy oriented to ensure equity in the access to information Society and to help social integration among all the sectors of the population" (Conectar Igualdad)*
>
> *"... That the Program One Laptop Per Child answers to the need of educational quality and equality through the integration of information and communication technologies (ICT) in the educational process considering the national identity, particularly in areas with high levels of poverty, high illiteracy rates, social exclusion, population's dispersion, and low concentration rates of school population, in order to contribute to educational equity in rural areas" (Peru Educa).*

Most MIL programs search to improve educational equity, through universal access to the digital tools, and the educational system´s quality, understanding that integrating ICT into education *"does not include just the instrumental use of new technologies, but that it implies learning skills of knowledge management, communication, exchanges with other people in a global world, innovation capacity, and permanent updating" (Conectar Igualdad)*. The use of TIC is considered *"...an efficient resource to contribute to the development of educational capacities in*

[9] http://www.uruguayeduca.edu.uy/Portal.Base/Web/VerContenido.aspx?GUID=5a914b98-8ed5-416c-8002-4cab7d0ff250&ID=136599

students, particularly in the areas of reading and writing, logic and mathematical reasoning, and sciences" (Una laptop por Niño).

These policies´ interest in improving the educational quality is due to the fact that, even if the coverage and investment in education have improved sustainably and steadily in the last decades in ALC, educational quality is still low, and access to education remains unequal (ECLAC, 2011). The level of primary education in the region has progressed, reaching coverage levels similar to OECD countries. Nevertheless, secondary and tertiary education show important backlogs in the registries rate: respectively 82% to 99% in secondary education, and 43% to 76% in tertiary education. Even if the educational quality has improved in ALC, the gaps compared to more developed regions are still relevant. ALC student's performance is lower than their peers in OECD countries in international tests such as the International Program for International Student Assessment (PISA). Moreover, the differences in students´ performance by areas (urban and rural), gender, kinds of school (public or private) and socioeconomic status have increased. For example, in Argentina, México, and Panama the performance gap between urban and rural schools exceeds 45 points, after correcting by socioeconomic status, which means that rural students fall 1 year behind their urban peers (ECLAC, 2011).

Latin America and the Caribbean is far from being a homogeneous region. Likewise, not all MIL policies are developed in the same context. LAC countries vary widely in geographic extension, economic resources and needs, financial capacities, cultural framework, and even language. Internet penetration, as well as the infrastructure networks, the state of optic fiber coverage, or the public access equipments, vary according of the development degree of each particular Information Society.

Being the largest country in Latin America (more than half the South American region) and densely populated, *Brazil* must implement a wide-range MIL policy, appealing to local governments 'decentralization and active participation. Municipalities are in charge of managing the purchase and distribution of informatic equipments in their territory, for a total of 37 million students, with a general budget of 660 million American Dollars. Each Secretariat of Education decides if the students can take their laptops home, among other decisions. This is why the four digital educational portals where students and teachers from all over the country converge have a fundamental importance, since they propitiate a common identity, based on unified values, methodologies and pedagogies.

Argentina has the second largest territory in South America, after Brazil; however, the Conectar Igualdad Program does not aim at a territorial decentralization, but to an administrative decentralization. Several National institutions are responsible for the Program: the Argentine Republic Ministry of Education, the Social Security National Administration (ANSES), the Ministry for Federal Planning and Public Investment and Services, and the National Executive Cabinet´s Head. Even if these institutions ´actions regarding MIL initiatives are coordinated with the Provinces' governments concerning the equipment's´ distribution, the purchase and distribution is centralized. Delivering 3 million netbooks implies a large-scale logistics. This is the reason why ANSES´ participation is key, since this institution is in charge for the purchase

and distribution of informatic equipments, as well as for supplying technical support. As in Brazil, the Argentine educational portal Educ.ar allows the unification of contents, methodologies, and digital resources.

Both in the cases of Argentina and Brazil, given their large territories, there are several difficulties related to the coordination and articulation of MIL´s NISPs. Dussel and Quevedo (2010) observe that, due to the accelerated expansion pace, the programs are often overlapped, and suffer from the insufficiency of internal articulation. Not only national and regional programs coexist in the same schools; sometime occurs that the purchases are made by non-educational organizations, such as planning or infrastructure secretariats, which incorporate computers when they build new schools, almost as if they were part of the furniture. As a consequence, these purchases are often uncoordinated with more comprehensive educational policies.

The lack of articulation among diverse policies accounts for the lack between educational policies and other kind of national policies. In the case of "Conectar Igualdad" from Argentina, for example, there was a policy gap between digital literacy and the provision of connectivity and infrastructure, which has led to schools equipped with with computers but with no Internet connectivity. As described by Dussel and Quevedo (2010): "The first concern is digital inclusion, and has to do with reducing the gap between social sectors and between generations in the access and the use of new technologies. There are framed, among other things, public infrastructure and connectivity, by programs like "One Computer Per Child" and others, that aim at the acquisition of competence for the use of ICT. Recent data from the Argentine educational system, as well as other countries in the region, show significant progress in this direction. However, the connectivity map shows that there remain important steps to ensure access to the most neglected sectors of the population, either for socioeconomic reasons that limit such access, either by geographic location that puts them beyond the reach or current coverage map connectivity".

Chile´s LMC project is not focused on solving the digital gap, as are many of these programs in Latin America. Its main objective is to ensure ICT based learning towards PISA skills. It prioritizes educational quality over equality of opportunity. It should be remembered that Chile is one of the Latin American countries with highest Internet penetration (59%), behind Argentina (67%), so many students have computers at home. The pedagogical approach is similar to other countries using 1 to 1 teaching models. Teachers are trained regularly and there is a permanent tutor in each school. From 2011 teacher training in educational resources and computer support patrols have intensified.

The Government of Colombia is committed to a National ICT Plan 2008-2019 (PNTIC) oriented to make that all Colombians become informed and communicated by efficient and productive use of ICTs, to improve social inclusion and increase competitiveness. To achieve this goal, the Plan proposes a set of policies, actions and projects in eight main areas: four transverse (Community, Regulatory, Research, Development and innovation, Government Online), covering issues and programs that impact on different sectors and society groups, and four

vertical (Education, Health, Justice, Competitiveness), which relate to programs that will allow to achieve better ownership and use of ICT in priority sectors for this Plan. The Plan emphasizes three key aspects to be undertaken in the short term, due to potential impacts on the mass of ICT in society: improving access to infrastructure, help the widespread adoption of ICT in SMEs and consolidate the process of government in line. For the implementation of PNTIC it will be necessary to establish alliances and collaborations between government, private sector, academia, the scientific community and civil society.

Table 1: Synthesis of MIL NISP characteristics in LA countries

Countries	National Programs	Priorities	Action lines	Management	Achievements
Argentina	Conectar Igualdad Argentina Conectada	Increase e-inclusion Train human capital for the ICT labour market Link education with C&T+I and the productive sector	1 to 1 learning model Distribution of netbooks among secondary school students Teachers´ training	Centralized in the national Government	1.800.000 netbooks delivered 472.242 teachers trained. 67% Internet penetration.
Brazil	One laptop per child	Increase e-inclusion Train human capital for the ICT labour market	1 to 1 learning model Distribution of netbooks among secondary and primary school students Each education secretary decide if students could take the computers or not	Decentralized in local governments	500 schools covered, 42,680 institutions, 16,939 institutions under state, municipal 25,533, 198 poles UAB. 574,,000 distributed netbooks 39% Internet penetration
Chile	Netbooks distribution Laboratorios Móviles Computacinales (LMC)	Rise the quality of education Educational quality over equality of opportunity	1 to 1 learning model Distribution of netbooks among primary students of third and four grades	Centralized in the national Government	50,186 students equipped with 1,281 netbooks 59% Internet penetration
Colombia	National ICT Plan 2008/2019 "A que te cojo ratón" ("I´ll catch the mouse") and "path of ICTs appropriation" "Digital	Increase e-inclusion Increase economic competitiveness Improving access to infrastructure Help widespread	Three main approaches: community, productive sector, and state. Programs	Centralized in the national Government	

	Classroom"; "ICT Program Massification"; 1 to 1 pilot project	adoption of ICT in SMEs Consolidate the process of e-government	destined to teachers Strategies aimed at promoting digital literacy to different scholar levels Initiatives of ITCs universal access.		
Mexico	Habilidades digitales para todos Campaña nacional de inclusión digital Vasconcelos 2.0 Centros digitales comunitarios e-mexico	Increase e-inclusion Fight analogic and digital illiteracy Improve Internet access	Thematic Classrooms, equipped with a server, 20 connected laptops, and Internet access for secondary school students. Primary schools have received a computer connected to the Internet per each 30 students in 5º and 6º grade Mobilize secondary and university students to teach MIL to 30 million illiterate adult Mexicans	Centralized in the national Government	2,157 locations served, 80.5% of the intended target. 15% of the target population of 36 million 7,000 Digital Community Centers E-méxico 37% Internet penetration
Peru	"One Laptop per Child"	Increase e-inclusion Fight analogic and digital illiteracy Reduce the huge gap between urban and rural schools	Equipment (computer distribution) and connectivity in rural areas Teachers training Promotion of ITCs	Centralized in the national Government	513,204 computers delivered to students and teachers of primary schools in poor rural poor communities.

			appropriation in rural areas at first time, and in urban areas at a second one.		Over 5,144 teachers trained. 34% Internet penetration
Uruguay	Uruguay´s Digital Agenda (2011-2015) Plan Ceibal	Increase e-inclusion Train human capital for the ICT labor market Link education with C&T+I and the productive sector Modernization of the State impulsing Education, Innovation and Knowledge generation, Territorial Integration; and International insertion.	Distribution of personal laptops	Centralized in the national Government	670.000 laptops given to primary and secondary school teachers and students. 59% Internet penetration

5 . Conclusions and proposals

MIL policies in Latin America reveal the region's two main needs regarding its progress in Information Society: a) to grant the population´s democratic access to media and information literacy and education; b) to generate innovation processes based in education and knowledge, capable to diversify the region's economy, and to build an ICT based economic structure. In LAC economies, intensive in natural products, governments must use a part of the resulting income to encourage the diversification and competitivity if the rest of the economy, investing on education, innovation, and infrastructures (ECLAC, 2012).

While the main objective of digital literacy programs is the inclusion of the most neglected people, not all programs prioritize the same needs. For example, Chile, Argentina and Uruguay intended to reduce the digital gap within their territories and in relation to developed countries, but their policies do not distinguish between rural schools and urban schools, in order to decide

the field of action to a specified socioeconomic program. In the case of Peru and Mexico´s MIL NISPs, based on the need to solve the high levels of inequality and the huge digital gap, coupled with a low Internet penetration, the programs´ priority is to include the most vulnerable social sectors in information Society in the case of Peru, and to reduce the "hard gap", mainly among the illiterate population, in the case of Mexico.

Regarding the countries´ technological capacities, Argentina and Uruguay already have a relatively high University education level, and they need to advance towards coordinating their policies regarding both education and productive development, in order to increase their economies´competitivity in the global market. Brazil is oriented towards strengthening the technological capacity of its productive structure. Meanwhile, smaller countries, such as Colombia and Chile, are hit by an intensive brain drain process, and need to attract qualified human capital.

In countries like Argentina, Uruguay, Colombia, and Chile, the goal of digital literacy programs is not only digital inclusion in terms of reducing the digital gap, but as a first step towards training human resources, to increase and update the quality of education, and to link education with Science, Technology and innovation, and with the productive sector. The cases of Peru and Mexico reveal an earlier stage, where the main priority is to care for a marginalized sector of the population, not only by the lack connectivity but also because of lack of analog literacy, rurality, and extreme poverty. The socioeconomic context is a determining factor in setting priorities, approaches, and goals to be followed by each of the programs.

In general, as stated, literacy programs or training in ICT, are part of larger NISPs. Not all countries are equally developed such agendas, but in some cases, such as Colombia, they explicit objectives that involve all sectors of society: the community, the productive sector and the state. The goal of promoting the adoption and appropriation of ICTs in all spheres of society, is in line with the three pillars on which the knowledge society is based: family and everyday life, new economy and labor, and politics in the knowledge society.

PROPOSALS

In first place, all the stakeholders like government, companies, universities, research centers, NGOs, and community have to participate in the process of communication between public policies for Media and Information Literacy and innovation, as a multistakeholder process. It's not enough to ensure digital inclusion: it's important to weave knowledge networks so that the flow of knowledge and interaction between stakeholders allows the consolidation of the innovation system.

The educational, S&T+I, and the productive systems need to establish active networking between the. The inclusion of scientists, students, companies, and NGOs in the planning development of the programs could be a first step.

It's necessary for the region´s countries to improve the articulation and management of MIL programs within each country, since diverse programs in various territorial levels, often overlap and suffer from lack of internal articulation. It is also frequent that the informatics equipments´ purchases are made from non-educational agencies such as ministries of planning or infrastructure, without coordination with specific education policies.

Moreover, some national policies related to information Society are distributed among different ministries, and have become out of pace. It's necessary to improve the coordination and monitoring of NISPs as well as to design National Agencies responsible for Information Sociey policies.

Digital literacy programs need to widen their scopes, by creating articulation networks with other programs, so as to go beyond the basic MIL. That means that it should be thought long term what the ultimate goals of digital literacy are -beyond the democratization of knowledge- and think lines of action in that way.

As a region, Latin America could prosecute their PDAs and digital literacy to common goals, to articulate plans and programs of each country and countries together, enriching their experiences. This would imply not only to observe the results of neighboring countries, but also to think and design public policies together. Of course, the political situation should be, to do so, favorable; and the political map of Latin America has not always been so. However, in recent years the region has a particular political harmony which could be, indeed, profited in this regard.

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