

5. Digital technology in public education: one laptop per child programme in Peru

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ABSTRACT

The study focuses on the perception by children, parents, teachers and principals of educational institutions of the three rural regions of Peru about the implementation of the One laptop per child programme. It identifies basic economic, social and cultural deficiencies within the population as an obstacle to benefit from the technological resource and points out the State's inadequate administrative management. In conclusion, more democratic practices are needed with an emphasis on the pedagogical aspect in order to improve rural education in Peru.

Keywords: *digital technology, rural education, educational policies, One laptop per child Programme*

1. INTRODUCTION

Education in Peru may be defined as an enormous debt to the people. From every point of view, the Peruvian educational system survives under the ineffectiveness and managerial shortcomings of the State. This contrasts with the relevance given to education in the political discourse and the striking governmental decisions that once and again stir up expectations among authorities, teachers, parents, students and society in general.

One of the most relevant shortcomings which motivated the interest of this work is the educational inequality resulting from demagoguery. As such, the government faces the challenge to give all Peruvians, in particular, the poorest, the right to quality education.

Poverty, social exclusion, and the lack of personal and collective development perspectives occur precisely in places where the worst educational conditions are found. (NEC, 2007)

It is today publicly known and an essential part of the political discourse, that the democratization of education is the fundamental principle that may lead to equal opportunities for all Peruvians including access to knowledge, better employment opportunities, higher living standards and the personal accomplishment that all young people deserve.

Based on this recognition, the past government administrations have prioritized different specific actions, although in a not very clear manner.

Making a brief review of the previous administrations' contributions, we may say that since the year 2000 geographical coverage is no longer a problem in Peru as there are schools almost everywhere. Currently, the greatest problem is the quality of the service offered among the poor populations, and the lack of material and human resources needed to improve teaching contents and methodologies.

During the 2001-2006 period, a commission made up of experts prepared the National Educational Project, a document on educational policy containing the principles, objectives, strategies and activities needed to be carried out in order to radically solve the educational shortcomings of our country. The year 2021 was established as the deadline for its completion.

Nevertheless at the same time, the last two Peruvian administrations undertook actions to establish digital technology for public education; both cases ended with negative results.

The most recent was the OLPC Programme, which has aroused great attention and expectations among analysts, research centers, NGOs and institutes from the civil society that are interested and participate in the development of education in Peru. In the first place it is not a problem typically addressed by the State nor does it concern itself in meeting educational demands from the least privileged and historically disregarded sectors of the country (rural schools, single teacher schools, multi-grade schools). In the second place, it represents a qualitative leap of implications not considered before in helping social sectors previously excluded from the benefits of modernity. It is for this same reason that we are interested in analyzing the suitability of the programme, as it consists on a technology that is not part of the student's environment. Also, the student would be encouraged to handle instruments that might uproot him from his family and social context and that might even estrange him from reality, from his needs and from his immediate problems.

From the official point of view, the OLPC Programme is proposed as an instrument for the empowerment of rural families; essentially, a starting point from which that segment of the population could overcome the exclusion to which it has been confined to and placing it as a passive subject of "progress" that other more privileged segments enjoy. The computer in the hands of children is, hence, conceived not only as a learning drive and equalization with urban sectors, but also as an agent of progress for the community.

The purpose of this research is to address political, social and communicational implications resulting from this programme from the perspective of the stakeholders involved conceived as beneficiaries -the families (children and parents) and the educational institutions (principals and teachers) that have received the XO of the OLPC Programme in its initial stage (2008).

The questions that initially caught our interest may be summarized in the following: How is technological integration expressed in social practices? What symbolic values do users grant to modern technologies? What has been their influence on the building of citizenship,

networks and social development? What has been the role of the new forms of communication in the socialization and representation processes of children and young people?

1.1. General objective

Analyze and evaluate social and cultural transformations brought about in national public schools as from the introduction of digital technology. The purpose is to construe, from the subjectivity of the individuals involved (children, teachers, authorities and parents) the inter-personal and social transformations given to learning and socialization forms fostered by the use of communication technologies.

1.2. Specific objectives

- Establish the stakeholders' perceptions with regard to transformations attributable to the OLPC programme in social, cultural and communicational aspects, and analyze what development expectations are installed in the population based on this new form of education.
- Analyze how the beneficiary population (children and families) adapt to the technological environments of the community and their impact on their symbolic practices, their interaction, participation and social organization.
- Evaluate the personal and collective expectations and projections as a result of their command of these tools.
- Establish the emotional, cultural and political transformations generated by information and communication technologies in the selected communities.

2. THEORETICAL AND REFERENCE FRAMEWORK

According to an evaluation performed by UNICEF in 2011, policies seeking to improve education in Peru evidence some positive results, particularly in primary level coverage.

At a national level, 93% of children between 6 and 11 years old attend primary school. However, 4% are not attending, which represents approximately 145,000 children"... "With regard to lagging behind in school, in Peru, 23% of children between 6 and 11 years old are enrolled one grade below what they should, a percentage that almost doubles among children who learned to speak Quechua (43%) or Amazon native tongues (45%) in their early years. Forty-two per cent (42%) of children between 6 and 11 years old living in extreme poverty have some type of school lag. (UNICEF, n.d.).

2.1. Technology and the digital divide

Technological progress has given rise to perspectives of different kinds and signs, and it opens an unprecedented yet promising scenario in meeting man's needs. Above all, it does so in the creation, accumulation and widespread distribution of knowledge and is, therefore, the undisputable right of all to be a part in this process. International agencies focused on culture, such as UNESCO, and in our case, the Peruvian Government, agree that the States have the obligation to formulate policies for the construction of the so-called Knowledge Society. Moreover, it is recognized that all human beings have the right to access the benefits of technological development.

Inequality in access to information technologies is considered a distinctive feature of disparity situations. This "digital divide" heavily underscores social differences as it directly affects the possibilities to interconnect with knowledge sources, a situation that turns into a disadvantage in personal and collective development possibilities. This imbalance in access to products arising from material and technological progress are typical of underdeveloped societies and has accompanied us throughout our history; however, at present, the consequences of this relegation become more relevant due to the following:

- 1. The current importance of the need to connect with the national and global environment -an essential condition to accomplish better living standards. Current technologies offer access to the broadest information ever known. Information today is a basic element in the exercise of citizen rights, solving problems, working out employment or production alternatives, contacts and access to different services.

- 2. The opportunity that this virtual sphere offers to participation with different kinds of interventions, such as artistic, informative, commercial, opinion-related. In other words, in the virtual world, all voices can express with absolute freedom and may eventually be heard anywhere in the world. It is, therefore, not fair to exclude certain segments of the population from this possibility.
- 3. Digital technology is becoming increasingly accessible, requiring less and less sophisticated skills, restricted to certain persons with special talents. Its use, therefore, should not be limited to an elite. The use of technological instruments is increasingly easier, which should lead to its prompt generalization, though this would not imply the immediate acquisition of digital skills.
- 4. The dimensions of information that digital technologies offer in their extraordinary capacity for transmission, recording and filing of data, music, images, even in real time, bring about opportunities and cognitive skills radically differentiating those who have them from those who do not.

In Peru, the availability of communication and technological resources has been growing due to the intensive commercial activity and to a degree of economic progress in the middle strata of the population that makes it possible for them to buy them.

According to the National Institute of Statistics and Data Processing (INEI), during the first quarter of 2011, cellular telephone communication reached 83.3% in Metropolitan Lima and 81.3% in the rest of Urban Populations (populations with more than 2,000 inhabitants) while in the Rural Areas it reached 46.2%. While distances persist, cellular telephone communication has become a kind of “democratization” of communications as its use continues to spread. From our own experience, we were able to verify in the field that many of the homes visited had a cellular telephone; however, not all of them had a television set, only one or the other had a computer and none had an internet connection. This is probably due to many factors, basically concerning the penetration of mobile phone companies across the country, the reduction of costs, the easy use and the undeniable existing need of communication in towns that have no adequate road connections let alone air transportation.

2.2. Rural schools and computer literacy

In rural areas of Peru, school is barely the breaking point between complete reading and writing illiteracy and knowledge (usually elementary). Nevertheless, teaching and learning to read and write are not limited to the command of a technique, the recognition of certain symbols, enabling a person to decode and encode. Literacy creates new cultural practices, generates a prescription for their use and reconfigures social hierarchies in certain social and cultural environments.

In the words of linguist Virginia Zavala (2002), the term literacy comprises reading and writing not only as a specific technique, but as its insertion in the social practices of a certain community. The learning of new techniques essentially has an impact on relevant, symbolic activities of the community, on the expression and assumption or reconceptualization of values, feelings and beliefs and on the management of time and of space. In contrast, the beneficiaries' perspective is that learning to read and write is conceived as an instrument to "defend from a hostile and unfair world". (Zavala, 2002, p. 21).

In the social imaginary of the population, education symbolizes progress, particularly in rural sectors that see no other opportunities to overcome material living conditions that are often below the basic survival rates. It is a historically rooted association, and it is expressed in the expectations of the population with regard to school, which is conceived as a means for the children to gain access to higher living standards than those of their parents. It is around school that they focus their hopes and illusions of a future they are unable to offer.

What actions must the State undertake to guarantee a timely and adequate insertion of excluded zones to the knowledge society and the use of digital culture benefits? Is the OLPC Programme the most adequate strategy?

For decades school instruction has focused on reading and writing as the only or the best form of literacy. However, today, a new form of teaching based on technology is being promoted through which the approach to literacy teaching is innovated. The OLPC's computer opens more creative possibilities to express learning or experiences encountered in school; it allows one to elaborate drawings, graphics, record

sound, capture images and edit them, etc. From this perspective, we may establish that computer application learning is a mechanism for the introduction of a new literacy teaching system in school, which, in turn, would trigger a series of transformations in the beneficiaries as to how they interact and in the community as a whole.

Is it under this concept that the need to establish technology in the classroom is set out? Is it implicit that the student must understand and participate in the world that surrounds him, which today would boast high technological density in day-to-day activities? In that case, technology in the classroom would enable children to perform within a context where this technology is already present, but such is not the case of rural zones covered in the first stage of the OLPC Programme.

If what is claimed here is that the purpose is to provide equal opportunities to those who have so far lacked dignified resources for learning and quality education, it is necessary to bear in mind that these technologies are not yet present in the social environment of rural children. Correspondingly, that they are probably being considered intrinsically optimal instruments for learning, and their introduction in the life of these children would have a beneficial impact regardless of the circumstances or forms of insertion.

In a recent National Conference for Educators organized by Universidad Peruana de Ciencias Aplicadas, Julio Fontan, a guest speaker from Colombia, stated: "The goal is not that students use technology, as they are already using it and will continue to do so, but that children develop their potential..." (*El Comercio* newspaper, August 8, 2011). As may be observed, experts on this subject assume that technologies are already a part of the child's life, and that the role of the school is to open students to the contents, tools and uses that may stimulate their full potential, prevent distortions, so that they may acquire skills for a creative use. However, as we previously pointed out, this is not the situation in the areas visited where most of the children did not know or had never seen a computer, and their only contact with technology is television and the cellphone of their parents.

2.3. Digital culture

“When the technological mediation of communication stops being merely instrumental to express itself, densify and become structural, it inexorably changes the place of culture in society.” (Walzer, 2005, p. 21)

As a recent phenomenon, it is important to evaluate the impact that establishing the use of digital technology has in the family dynamics in an excluded population. Also of importance, is the role that the child assumes as a holder of skills completely different than those of his parents, basically devoted to farm work, which may induce him to disruptive practices and behaviors in the family dynamics.

The portability of the XO confronts us with another aspect of irreversible implications that must be examined: the unblocking of the school institution as the sole place where acquisition and appropriation of knowledge take place. As the child gradually acquires autonomy in the use of the computer and uses it as a learning inducer that he can handle with relative autonomy, the teacher’s image is changed and maybe devaluated, as well as that of the father and the mother as carriers of knowledge.

Meanwhile, Derrick de Kerckhove observes that the omnipresence of digital technologies and their intensive use are having an impact on human beings, in the mental operations they make:

All technologies that encode, classify and carry language also modify it, as they modify the emitter, the receiver and the users of language. Language keeps a close relation with our mind and all technologies that affect language also affect the strategies we use to organize the time, space and ourselves. Therefore, psycho-technologies restructure our minds. (de Kerckhove, n.d.)

This represents another innovation of this study, which is to identify the impact of introducing an innovative educational resource to which many authors, promoters and detractors attribute completely unprecedented and radical transformation powers in the ways in which an individual understands (and reformulates) his relationship with the environment.

When analyzing digital culture, it is viewed as a means or result of the adaptation of technologies to society, highlighting the way in which productive and distributive information and communication processes

have been made easier, towards a future that inexorably defines a higher stage in the evolution of mankind. Nevertheless, we should consider the short-lived promises, the frustrated expectations, and the projects that are attempted but do not reach consolidation or result in superficial appropriations. Notwithstanding, all of these have the capacity to destabilize what was previously valid.

The culture of inter-activity in the digital era may be defined as ways of life and behaviors absorbed and conveyed in everyday life, marked by digital technologies by means of communication and information and interfering in the people's imaginary. This mediation and interference correspond today to the characteristics of a new communicational logic [...] (perspective of the hypertext network, of the digital, the random, the multiplicity, the multi-directionality, the hypermedia). (Silva, 2005, p. 68)

2.4. The OLPC program: its application in Peru

In 2006, Peru adopted the OLPC Program as a direct initiative of the Government towards improving education in the early school years as an immediate, effective and low-cost option to incorporate all children, particularly those from the least privileged areas, to the benefits of the information society.

“In the OLPC program, Negroponte, Papert and others sought to develop and distribute a low-cost “children’s machine” that would empower youth to learn without, or in spite of, their schools and teachers.” (Warshauer & Ames, 2010, p. 34). This statement refers to one of the most controversial principles of this programme: it is presented as an opportunity for youth to learn without, or in spite of their schools and teachers. And we have observed that it has been established in our country under these assumptions, given that, as we have verified, the Ministry of Education has not conducted a thorough previous work with teachers and educational institutions, but has carried out the OLPC Programme precisely without them, assigning them maintenance tasks for the laptops and basic training for their use by children.

The Programme is conceived in itself as carrier of sufficient contents and tools to activate children's learning, from a rather fundamentalist perspective of constructivism.

Thus, learning is understood as a cognitive, knowledge-building activity which belongs to the articulation process of external stimuli and individual potential. And technology is attributed with the power to offer a child the motivation, the fundamentals, and the right procedures to develop a self-learning process independent of teacher intervention.

It does not consider the reformulation of the curricular structure nor the work methodologies or the redefinition of the teachers' role as requirements for its application.

The program One Laptop Per Child responds to the demand for quality education and equality through the integration of information and communication technologies (ICT's) in the educational process based on national identity, in particular, in zones with the highest poverty rates, high illiteracy rates, social exclusion, population dispersion and low school population concentration rates, to contribute to educational equality in rural areas. The program seeks to improve the quality of education, to which end the teachers' role will be modernized and strengthened. (www.perueduca.edu.pe/olpc/OLPC_Home.html)

The programme implementation started in the second grade (grade age 8 years). The institutions benefited in this first stage were rural, single-teacher, multiple-grade schools located in extreme poverty zones. It is important to bear in mind that many of these rural schools serve a bilingual population; however this aspect was not taken into account, and the OLPC Programme introduced by the Educational Technologies Office (DIGETE) was not established based on a teaching and operative articulation with the Bilingual Intercultural Education Office.

Despite the qualities and versatility attributed to the computer, reality contradicts expectations dramatically. One of the most menacing problems involves the zones where it has been distributed in; they have been unable to overcome the lack of electric power. Official spokespersons say it and several documents of the Ministry of Education (Minedu) insist that electric power is not indispensable and mention solar panels as an alternative. However, in Peru, the technology for transformation of solar energy into electric energy is not widespread.

In pedagogical aspects, the promotion of the XO is based on the game-like nature of technology, the opportunity offered to the child to

intervene, manipulate and create. In turn, this would define the optimal conditions on which learning takes place in the early school years, from a coherent perspective with the new educational approaches: "... through activities proposed in the XO laptop, we will be promoting the active participation of students, that is, learning by doing." (www.perueduca.edu.pe/olpc/OLPC_Home.html)

The XO computer is intended as a resource capable of "adapting to different learning styles and of offering different activities for a wide array of pedagogical activities. Furthermore, it stimulates the social construction of knowledge, as it generates and strengthens relations between students, which enables and stimulate collaborative learning, increases motivation, lifts self-esteem and develops more effective social skills... The impact of technology is considered in the expansion of students' perspectives with respect to their context and the world, strengthening their self-esteem and their personal projection to the future." (www.perueduca.edu.pe/olpc/OLPC_Home.html)

Another of the characteristics of the XO is that it has free software, a quality that allows the incorporation of new applications, in line with the particular needs and skills of the user. This should be an opportunity for teachers to create their own teaching resources. Nevertheless, the training received by the teachers was exclusively limited to operative aspects on how to handle the laptop.

With regard to the perception of the students' parents participating in the programme, they are mentioned as indirect beneficiaries responsible for accompanying the child in the development of new skills as they get acquainted with the benefits of technology. But their task is actually reduced to taking care of the computer, to which effect they are required to sign a letter agreeing to be responsible for its optimal maintenance. The importance of family is minimized, probably based on the reality of the rural context, but in no way justifies its exclusion: parents do not know what their children are learning. In its double interpretation, this phrase is true. On the one hand, parents are unaware of what their children are being taught at school because they are busy with other activities and do not follow up on their children. And, on the other hand, it often happens that parents have lower levels of education than their children or the contents of what the school

offers are alien to the environment where the child is being raised, hence, unknown to the parents.

2.5. Changes in the application of the OLPC Programme

In November 2009, the Ministry of Education formally initiated what has been called the second stage, incorporating multiple-class and multiple-teacher schools and establishing Information Technology Resources Center (ITRC) proposed as an alternative to the original proposal of a computer per child. These centers consist in spaces equipped with computers, multimedia resources, and audiovisual resources and a robotics kit in numbers in proportion with the student population of each educational center. This ITRC surely brings to mind the computer laboratories where computer studies were taught many years ago, a comparison rejected by Minedu sources, as they say: it is not about teaching computer studies, but about joint experimenting, creating and innovating of teachers and students.

Subsequently, in June 2010, public schools of the capital city were incorporated, with the purchase of 29,414 computers that would be assigned to 455,366 students of 889 primary schools of Lima. Furthermore, the delivery of 881 network servers, 886 multimedia projectors with screen and 8,884 automation and robotics modules was announced.

At the same time, a general call was made to the Regional Presidents and Directors of Education to invest part of their budget in the purchase of the laptops. Suggestions were made to invite local companies and organizations to assist in the transformation of education with information technology. No reply from Regional Presidents has been reported with regard to this suggestion. A policy that could seem decentralizing but which brings to light the incapability of the central government to manage an educational policy that emerged under the dazzling light of technology. Furthermore, it was based on the mass purchase of computers, minimizing the contribution of teachers to education, even when incorporating digital technology. According to official spokespersons, 840,000 laptops were purchased between 2007 and 2011.

We must point out that after the change of government administration in July 2011, the OLPC Programme has been completely reformulated.

3. METHODOLOGY AND POPULATION

The search for information to conduct the study focused on six areas of the country. They are not presented as a representative sample, as they were selected based on criteria such as logistic feasibility, accessibility, favorable disposition and previous agreement with the responsible authority in each school.

In order to elucidate the objectives proposed, we programmed visits and designed questionnaire guides as research tools for school principals, parents, teachers and students.

The selection of the schools obeyed to the following criteria: a) That the OLPC Programme had started in 2008 (two years before our visit) to evaluate a process already incorporated; b) that the children benefiting from it were in fourth grade, an indispensable condition so that they would be able to reply to a questionnaire and c) that they had been beneficiaries of the programme in its first stage.

Our research was made in rural schools and communities of three regions of Peru: Lima (Huarochiri: Antioquia and San Bartolome) Cajamarca (Colpon and Baños del Inca) and Ucayali (Yarinacochoa).

Schools that had entered the OLPC Programme in its original form were identified, as this was the form applied in 2008, with second grade primary school students. Therefore, these are children who are currently in the fourth grade of single-teacher, multiple grade schools in rural populations, classified as living in extreme poverty conditions.

In the **Region of Lima**, close to the capital, two communities were visited in the highlands: Antioquia and San Bartolome. In the former there is no Internet access and newspapers from the capital arrive only on weekends. In San Bartolome, Internet services are offered in the town occasionally, through a private business.

In Antioquia we visited the school Andres Avelino Caceres, which has primary and secondary levels, with eleven students doing the fourth grade of the primary level. With regard to the San Bartolome school, it is coeducational, it has 16 students in the fourth grade and two grade work in each classroom. Internet access is through a router which is usually inoperative.

The **Region of Cajamarca** is part of the Peruvian northern Andes. The village of Colpon is three hours away from the capital. There is no public transportation to the community, and it has no Internet service. There are no telephone land lines, only one for the community, but cellphones do operate. Furthermore, there is no cable television or newspapers. The Colpon school has electric power. It has only primary grades and in the fourth grade there are nine students enrolled. It used to have satellite internet, but it was cut in July 2010.

The other community in the study was the village of Baños del Inca, barely 20 minutes away from the province capital, so public transportation is constant. Some homes have telephone land lines and there are several television stations. Moreover, they receive all national and regional newspapers. The school La Esperanza has only primary level. It has no electric power or Internet, which is surprising as due to its proximity to a city it is not considered a rural community, yet it has not basic services. There are ten students in the fourth grade.

The **Region of Ucayali** is in the rainforest. There, 30 minutes away from the city of Pucallpa, is the village of Campo Verde. Public transportation is consistent throughout the day but lacks Internet connectivity and telephone land lines; hence, the use of cellphones is widespread. There is television signal, both national and regional, as well as cable television. The school has only primary level and there are 12 students in the fourth grade. It used to have satellite Internet, but it was suspended in 2009.

As for the bilingual school of Yarinacocha, it is located in the village of Tushmo, 20 minutes from the city of Pucallpa. It is quite accessible as transportation is constant. With regard to communications, there are no Internet cafes, cellphones are scarce, very few homes have television and newspapers do not arrive there. The school offers primary level bilingual education with twelve students attending the fourth grade on a very irregular basis.

A total of 15 teachers were interviewed in the above-mentioned schools, as well as five principals, 65 children and 33 parents.

In addition, interviews were held with officials from the Ministry of Education and with researchers who performed external evaluations.

4. ANALYSIS AND INTERPRETATION OF RESULTS

One of the focal points in our study was the conditions on which they accessed the OLPC programme. In this respect, we found a wide array of situations. In some cases, the schools had requested desk PCs for the computer laboratories while in other cases some schools were randomly assigned laptops without any previous coordination with the Minedu authorities, and they were surprised when they were assigned laptops without knowing why. Some principals believe there was a draw. For example, there was no written request from any of the schools principals to access the OLPC Programme. Additionally, situations have been reported where the number of laptops received did not match the number of students.

Although it does not appear as a condition in the OLPC Programme proposal, in the perception of all the segments interviewed, one of the most serious drawbacks includes the lack of Internet connection and hardware and software problems. These included: the mouse-pad right click button does not work, battery charges break down too fast, the keyboard is weak, the machine does not always read the USB nor properly saves downloaded files, the battery lasts between thirty minutes and two hours, unresponsive mouse-pad, and the audio system stopped working. As for the software, the programmes have not been updated, and the children get bored always repeating the same application.

Most of the **teachers** who were assigned to manage this resource did not know how to use a computer, let alone adapt it into the curriculum nor use it in their classes. The training they received was insufficient to use the potential offered by the XO. Most teachers only received a one-week training course limited to basic operation and maintenance aspects. Training did not include how to incorporate them into educational matters or the improvement of teaching methods. Of note, the laptops motivated some teachers to learn on their own (with principal approval and utilizing their own resources); however, in other cases, the obligation to use the XO produced an unexpected requirement to which they have adapted, slowly and with great effort, more due to the pressure than for their own conviction.

Nevertheless, far from questioning the way in which they were made to face the use of the laptop, teachers seem to understand that one of

the predominant requirements of the labor and professional world that awaits the students is the use of computers and therefore, they have made an effort to use it for the benefit of their children and for their own.

Most of the **children** had no computer use knowledge until the program arrived at their school. However, and even when they were interviewed they had stopped taking it home several months ago and some of them had even stopped using it in school, they mentioned a wide range of applications that they had learned and greatly enjoyed (especially those who had some access to Internet): “explore” or “search” words, images, stories, games. Many activities were connected to their school work: puzzles, maps, geometric figures, creating stories, consulting dictionaries, searching in Wikipedia, taking pictures of community activities, family or animals; searching historical data. However, what they liked most was to play, listen to music, draw or write, but in no case they abandoned their usual routines: washing, sweeping, taking care of animals, helping with house chores, taking care of their siblings, cooking, helping in the farm and playing volleyball, football or watching television in their free time.

Parents - usually uninvolved with the education their children receive, due to work or cultural reasons, with the introduction of the laptop paid still less attention because it completely strange to them. Even if the children were interested in sharing what they learned with their parents, they always refused. They even opposed their children taking the laptops home, as they were afraid they would have to pay if they broke down. However, they do appreciate that their children can get acquainted with an instrument that they relate with better opportunities for the future, the possibility to migrate, follow higher studies away from their community.

5. CONCLUSIONS

1. The OLPC Programme is a clear example of fascination or technophilia as technology itself is considered to have the capacity to dazzle and thus stimulate the alleged innate conditions of children to adapt to it. One must bear in mind that the technological impact of the information society is not yet a phenomenon that is part of economic, social

and cultural practices in a significant part of the Peruvian territory. And if technology is undeniably an opportunity for progress, the more reason for the State to guarantee that computer literacy in school goes hand in hand with accessibility to electricity and internet connection services and to technological resources to configure altogether the environment where the children will interact.

2. This experience has evidenced the undervaluation of the teacher by educational authorities. With minimum training, exclusively related to the laptop operation and maintenance, with no support (in most cases) during the process, a working tool, unknown to them, was imposed and installed without taking into account the institutional education plans. This forced them to improvise to adapt their course, the curriculum and their teaching methods to the characteristics of this new instrument, involving at the same time the school population in their charge.

3. From the State's side, it was assumed, as a starting point, that the teacher would see him/herself motivated (compelled) to learn (or self-learn) in order not to fall behind, facing the vitality that technology would trigger in the students. But based on expressions from the highest authority at the time, attempts were made to evidence that children would not need the teacher to acquire the knowledge offered by the virtual world and that they would be able to achieve higher learning levels without him/her. That is to say, teachers' deficiencies would be corrected by the children themselves and the laptop potential.

4. The OLPC Programme apparently tried to shorten the path from a fragile education as to infrastructure, teaching resources, teaching methods and development of teachers, towards quality education, in line with the demands of globalization, providing the children directly with the instrument to access knowledge.

5. The family institution has been completely undermined as the parents have been ignored in the application of the Programme. They were included as responsible for the maintenance of the machine, but since they were not informed about the characteristics of this new form of learning to which their children were being incorporated, they were denied the possibility to participate and benefit from the process. There were no communication strategies, no discussions or advice regarding this new form of teaching being established.

6. The execution of the OLPC Programme in our country represents an authoritarian measure where the Government not only disregarded essential material aspects for an optimal implementation, but, most importantly, failed to provide the mechanisms (democratic and coordinated) to configure a critical mass that would become a driving force in the great leap of rural communities towards the society of knowledge.

Recommendations

1. Peru is a country that must practice democracy at all levels and in all spheres. Also in the way educational policy is conducted. As a result of the reflection that this research work has generated among us, we suggest that decisions concerning educational innovation be discussed and shared with the people involved, in particular, with principals and teachers, who, in general, are aware of the need to introduce technologies into the educational process, but with respect to which they admit they need to learn. The State must satisfy these demands rather than impose responsibilities that create confusion and frustration.

2. Despite the deficiencies in implementing the OLPC Programme, it was verified that in children of poor populations of the country, working with the laptop had awakened skills and motivation for learning and knowledge. For this reason, we argue that it is essential to redefine the Programme and to adapt it to the reality of each place, satisfying the requirements regarding infrastructure, basic electricity, Internet connection services and an efficient training of teachers and families. We consider that the introduction of technology, even in the rural communities of our country, is a process that will soon materialize. In this respect, the best is that they are gradually inserted in an educational context. In the cities of Peru this process takes place mostly in Internet cafes, businesses that operate without proper controls, with the distortions and risks that this implies.

3. It is fundamental that in addition to the school, other institutions of society become more involved in education. Specifically, we suggest that entities such as Municipalities, Churches, Universities and companies within the framework of their social responsibility, should implement communication services for the community, much like the current

Internet cafes, but with a different approach, not just for profit (although the possibility that they may generate income is not necessarily ruled out), with a system that at the same time it serves children and adolescents, it attracts adults, senior citizens, parents, offering them assistance, academic guidance, technological training, thus contributing to computer literacy in line with user needs.

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