

Pirambu Digital, a Social Inclusion Project using Information Technology

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Abstract: *The Pirambu Digital is a successful project of social inclusion using Information Technology. In this article we discussed the feasibility and importance of professional training of young as an efficient strategy for the generation of employment and their integration into society. We present the methodology adopted in the Pirambu Digital, the goals achieved and criteria that make it possible to replicate the project in places with the same socio-economic characteristics. The experience of Pirambu Digital shows that the training of young people in information technology, entrepreneurship and economic solidarity can facilitate their professional and personal achievement. The emotional ties of young people with the neighborhood where they live are reinforced. Our main argument is that the true digital inclusion in the country will only be possible through ownership by the couple of their social milieu.*

Keywords: *Education digital, Digital divide, Information technology*

1. Introduction

The state-run institutions, responsible for the educational programs, and the educational institutions, in charge of the production and the dissemination of knowledge, should act as transforming agents of society. In Brazil, this responsibility is not being entirely met and gaps exist that have only increased, particularly concerning fundamental public education, which fall short of providing acceptable formation to students from public schools. This deficiency hinders these students' opportunities to enter the highly competitive public universities as well as the work force.

This situation gets even worse among the less favored social classes, which are highly dependent on the public education. The lack of investment in the youth, mainly concerning education, causes a big damage for the country. This reality exposes the youth to a situation of constant risk. In the State of Ceara, for example, a hundred thousand young people finish the public secondary education every year but most can only be candidates to delinquency or to frustration, since they can neither compete in the local public universities, nor afford the highly expensive private universities. In addition, there are not formal jobs fulfilling their expectations since, in general, they do not have enough skills allowing them to exert a professional activity. What can be done, then, to change the reality of these young, most of which come from low income communities? This reality challenges the State pushing it to invest effort and resources to address this problem.

From our experience, gathered from several projects along more than two decades, we are convinced of the rewarding aspect of betting in the potential of the young, who should be fully inserted into society. One way of exploiting this potential is by offering opportunities to these people that let them have their own income and consequently earn their lives, by dodging the illicit paths, particularly the one of the drugs. Betting in the young can be considered from two perspectives, one philosophical and one pragmatic. Or both, if we invite the young to do activities that they like and that allow them to obtain earned income. It is in this context that we present in this paper the e-Jovem (e-Young, in English) [Oliveira, 2008], a project that set out to recreate the dream of two hundred thousand young in the state of Ceara.

2. The IT Market

How can Brazil take a significant leap in the socioeconomic area? This requires a deep scrutiny of the opportunities provided by the international scenario. Take

¹ Brazil fail to win U.S. \$ 300 billion over the next 40 years [Weiss, 2007], value corresponding to the youth in the country could produce if not abandon their studies to enter the labor market.

Korea, for example, whose per capita GNP increased in 680% between 1962 and 1990. Huge investments in education and IT are behind the Korean "miracle". Once again, the technology of information presents as an opportunity to promote the Brazilian leap into a welfare state, where the young from the less favored classes can play active role and become an agent of social and economic transformation of the Brazilian society.

In 2003, the world market of IT service represented around US\$ 538 billion, of which US\$ 355 billion were software related services. Nowadays, IT offshore outsourcing is a market of US\$ 38 billion that mushrooms at the impressive rate of 20% a year. According to international sources, like AT Kearney and Gartner Group, this market, dominated by India, is spreading to other developing countries. Today Brazil occupies a modest 16th position, but in 2015 we will rank 4th, second only to India, China and the USA. One question comes to mind: where will go the market of software development in Brazil to? Will it be distributed according to the GNP participation of the different localities (e.g. IBGE studies show that 50 of the Brazilian 5,564 municipalities concentrate half of the wealth produced in the country)? Will the Northeast region miss the opportunity? Will the young living on the outskirts of the big cities take part of the "digital life" of the country? The Pirambu Digital showed us that it is possible for the young to make money with IT while reinforcing the ties with their neighborhood.

3. The Pirambu Digital Project

We argue for the viability of the social inclusion of the young coming from underprivileged areas through IT, provided that there is a methodology that encourage these young to stay in their own neighborhood.

3.1 Antecedents

O The Pirambu Digital [Pirambu Digital, 2008] is a socio-educational and cultural enterprise, based on the principles of the economy and solidarity [Oliveira, 2008]. Resulting from a partnership between the CEFET-CE and the Emmaus movement [Emaus, 2008], the Pirambu Digital is a project of "social inclusion through the information technology" carried out in the Pirambu neighborhood, a slum in Fortaleza with 365 thousand inhabitants. The Pirambu is one of the biggest slums in the Northeast region, with a high population density, low schooling levels and, hence, low human development index (HDI). Fifty per cent of this population are estimated to be young people exposed to high urban violence, juvenile criminality and organized crime having as causes low school leaving age, unemployment, etc.

The partnership between the Emmaus movement and the CEFET-CE started in 1993, when professors from the CEFET-CE volunteered for social and educational activities at the Santa Eliza public school. In 2003, these institutions,

supported by the Korean industry LG Electronics, within the scope of the Law of Computer Technology, started a major project of professional training for the youngsters of the Pirambu neighborhood. Hundred twenty young people aged between 18 and 24, have been admitted by selective entry into two courses: Software Development and Connectivity. Consequently, young people who have had no contact whatsoever with computers up to then, had the opportunity to become technicians in Computer Technology. At the end of two years, by the end of the course, the students have been proposed another challenge: to constitute "productive unities" in their own neighborhood and in their own area of expertise and yet capable of generating revenue and also promoting social projects, in a way of paying back the opportunity they have been granted. So, the Pirambu Digital guild was born, constituted by 54 young students out of the ones that finished the courses offered by the CEFET-CE. Ever since, these young run their own business in a sustainable way, reinforcing the ties with the environment they live in, helping enhance the social condition of their neighborhood, which does not suffer from brain drain, so typical in this kind of situation.

3.2. Administrative organization

Located at the heart of the Pirambu neighborhood, the Pirambu Digital Guild has created four production unities in the areas of Software Development and Connectivity:

- PODES - Software Development Unity;
- FÁCIL – Computer Factory Unity;
- TREVO – Training and events Unity;
- NÊGA – Business and Administration Unity.

A starting up of the cooperative was initially guided by a research carried out by its participants under the supervision of a Professor of the Department of Mathematics at the Federal University of Ceara. The investigation remarked that there is only 0.5 computers per block on the neighborhood. To address this problem, the cooperative proposed the following activities:

- The PODES unity developed inexpensive easy-to-use applications, so as to facilitate their acquisition by small businesses. In addition, the applications can be leased and the training is made on site.
- The FÁCIL unity, which covers the areas of connectivity and hardware, refurbished computers donated to the project and rented them at highly affordable costs to households in the neighborhood.
- The TREVO unity provided training to the locals. Class-based and distance courses in the area of Communication and Information Technology have been offered to audiences ranging from beginners to professionals. Furthermore, events have been organized to disseminate the culture of computer related knowledge in the neighborhood.

- The NÊGA unity has worked on canvassing for business on behalf of the cooperative as well as the managing unity.

In addition to generating revenue to the members, the cooperative provides financial support to four social programs:

- CASA DO SABER (House of Wisdom): Aims at educating children, youngs and adults about the practice of citizenship and has been a reference of alternative education to the community.
- PIRAMBU BUSINESS SCHOOL: Pinpoints students with developed sense of entrepreneurship and trains them to the labor market or to run their own business. The students have courses on Portuguese, Mathematics, English, Computing and Entrepreneurship. They are also have their mind set on questions like social duties and their self-esteem enhanced.
- DIGITAL AGENT: people from the Pirambu neighborhood are trained by students from different universities to deal with Information and Communication Technologies (ICT) and in turn will relay their acquired knowledge by training other people.
- UNIVERSIDADE DO TRABALHO (Work University): There are 316.051 students presently enrolled in the secondary education at the public schools from Ceara, out of which 89,297 (28.25%) flunk out every year or simply abandon. Their entrance into public universities consequently gets more and more difficult. The Universidade do Trabalho's main aim is then to prepare the young from Pirambu for the highly competitive selection process of the public universities.

Moreover, there exist other projects in the cooperative's portfolio that enjoy special statuses:

- CONDOMÍNIO VIRTUAL(Virtual Condominium): Inspired on apartment building condominiums, the Condominio Virtual [Rocha, 2007] encompasses several houses in which one possess an antenna and plays the role of "digital syndic". The antenna signal is then shared among all "tenants" through a local network, making the access to the Internet possible at very low costs, thus ptomoting the digital inclusion [IBICT 2007].
- BILA – Biblioteca Integrada à LAN House (Library associated to a LAN House): allows the access to the Internet for a time that is proportional to the time spent on a library. With the motto "One hour of reading entitles one hour of surfing", the BILA project promotes digital inclusion while fomenting reading.
- PERSONAL TRAINER DE INFORMÁTICA: (Digital Personal Trainer) : Consists of an instructor who develops and implements an individualized approach to "digital fitness", generally working one-on-one with a client. The trainee may choose the day, time and place where the training will be held. It aims at promoting digital inclusion and the improving of computing skills to people at all ages.

Altogether, these different projects illustrate the different actions organized by the members of the Pirambu Digital Cooperative. These projects clearly present a social slant, even if they must be financially sustainable. The methodology enforces that every person benefiting from any kind of aid should retribute it to the community, thus consolidating both the bonds that tie them to their community and the social responsibilities of the members. In sum, the activities of the cooperative warrant the earnings of the members while sustaining the social projects that benefit around 500 people that visit the cooperative's site everyday.

3.3 Goals results and strategies

A survey carried out by the City of Fortaleza showed the increasing demand for technicians in the area of software development, ranging from programmers to project managers. The Pirambu Digital cooperative then reacted to this survey by putting forth a training program on object-oriented languages and web development. The program produced the first class in 2007 and plans to offer the one-year training at the pace of one class every year. The targeted audience are the young from the Pirambu neighborhood, who have to pass a selection process. They are also reminded of their social duties and of their moral obligation to pay back to the community the grant they have received.

Next, a few figures are presented to illustrate the results obtained with Pirambu Digital cooperative:

- 70 digital agents have been trained and;
- 4 virtual condominiums have been organized;
- 50 users - from children to aged people - pass through the BILA's library and LAN house;
- the Pirambu Business School offers, twice a year, courses on foreign languages;
- the PRE-VESTIBULAR prepares, every six months, 80 young students for the harsh admittance exam of the public universities;
- 100 children benefit from the remedial teaching provided by the Casa do Saber, which also offers classes of singing, music, dance, capoeira, computer, etc..

4. Reaplication of the model

The mainstay of the praxis of the Pirambu Digital Project lies in offering the young an opportunity to having access to the information technology and to education in a methodological way. One of the goals of the project is to replicate the model in environments with similar characteristics to the ones found in the Pirambu neighborhood, thus validating the model of economic sustainability with social inclusion of the young through the information technology. Our hypotheses are:

- That with creativity and solidarity the young are able to win their neighborhood;

- That the digital technology can be a means of democratizing opportunities in uncared-for communities;
- That software can be developed anyplace, provided programmers are given proper training and an opportunity [ARede, 2007].

Communities with similar social and economic problems look for solutions to reducing social inequalities, in particular the one concerning the right to go and to stay in the school and the preparation of the young for the work. One initiative of the community association of Titanzinho, from the Serviluz neighborhood, tried to reproduce the experiment of the Pirambu Digital. The young from the Titanzinho exchange experiences and attend to courses offered by the Pirambu Digital cooperative, in an effort to understand the methodology and replicate it in their own neighborhood. As a consequence, they created the Titanzinho Digital cooperative. The projects started in 2005 and today they count a few (a "cram up" course to the vestibular, foreign language courses and the training of Digital Agents.

With the installation of a Telecentro, from the Ministry of Communications and the donation of refurbished computers, the replication of the PODES, FÁCIL, TREVO and NÊGA unities is underway on the Titanzinho community. The training of the Digital Agents (with the support of the Pirambu Digital and of a few students from the CEFET-CE) and the BILA (Biblioteca integrada à LAN House) have also begun.

5. The e-Jovem Projetc

The Pirambu Digital project also inspired the e-jovem, an initiative from the Government of the State of Ceará, through it Secretary of State for Science, Technology and Higher Education (SECITECE). The e-Jovem project, started in 2007, intends to offer a professional training on IT to the students finishing the secondary education in the public schools from the state of Ceara. The program makes use of Distance Education technologies to teach Portuguese, Mathematics, Practical English, Computing and Logics.

5.1 Description

The strategy of the e-Jovem is to make the connection between school leavers and the professional education and the world of work through providing training of the young in ICT, management and cooperativism. The e-Jovem implemented pilot projects in 14 public schools in Fortaleza and 20 in the countryside. The schools have been selected according to criteria like existing infra-structure. The training ran three shifts everyday having twice as many students as the number of available computers. The participants have been encouraged to contribute their own social

projects in a way of strengthening their bonds to the communities they come from, as well as leveraging the means of production of the concerned localities.

The e-Jovem provides a portal that offers a space for debates, reading, sharing of information and a virtual learning environment, where the participants will have access to learning objects, communication tools, job advertisement, vocational training, on-line radio and forums. Centered on the leading role of the young in the society, the project rescues the self-esteem and confidence of the young. The instructors are young themselves, coming from the universities, what creates an space for the exchange of experiences and skills, giving rise to an environment teeming with creativity and partnership, so typical of the youth.

5.2 Methodology

5.2.1 Distance Education

The pedagogic idea underlying the e-Jovem is based on the interactionist theory[], which advocates that interaction is fundamental to the autonomy of the learning process, making possible a really meaningful learning experience in the sense of diversifying the ways of accessing existing information. The content is worked in a creative way through games that mimic challenging situations that will force students to develop their logical reasoning.

5.2.2 Structure of the e-Jovem curriculum

The e-jovem project curriculum is organized as follows:

Module 1: : Basic Languages - Mathematics (Logical and mathematical reasoning), Portuguese, Instrumental English and Computing languages. It contains orthogonal disciplines that value logical reasoning;

Module 2: Domain specific Languages – Technical disciplines from specific areas of knowledge and respecting the vocation of the concerned region;

Module 3: Social Practice – Entrepreneurship , Micro-credit and Cooperativism;

Module 4: Insertion into market work.

The participation into a social project is a necessary condition for the conclusion of the training.

6. Conclusion and Perspectives

The young is sometimes the society's vulnerable link and yet its only hope. To offer opportunities for the young to play a major role in the country's future by providing them with skills in the IT area so they can cater for their own existence is the motto of the Pirambu Digital, a cooperative of young professionals that develops and trades their own software applications and connectivity services. The Pirambu Digital has been acknowledged as an interesting application of the principles of the

economy with solidarity [Oliveira, 2008], considering the characteristic of the project of encouraging the young to "conquer" the neighborhood in which they live by participating economically, politically, culturally and socially.

There exist a few distinctive features in the Pirambu Digital: the young having had regular courses from the CEFET Ceara, might have chosen to work for companies from the wealthier and/or industrial neighborhood, as usually happens. Instead, they decided to establish their businesses in the place they come from. Also, it is worth noting the methodology applied in the project, which enforces participants to pay back their communities by taking part in social projects benefiting the communities. AN example is the Pirambu, which slowly buries its bad reputation of violent neighborhood, associated to drugs and marginalization.

Finally, if government, companies, civil entities, citizens create the proper conditions so the young may "conquer" their own neighborhood, these young will soon understand of being an important player in their own communities, compared to being another one in distant places.

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