The Efficacy of Digital Inclusion Educational Projects in Communities with High Social Vulnerability

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Abstract

This article aims to discuss some of the factors that compromise the efficacy of digital inclusion educational projects in communities with elevated social vulnerability, based on the evaluation of an unsuccessful experience. The influence of some external parameters (social, political, cultural, and technological) have been analyzed, which have potentially created chasms between the theoretical discussion and the true reality likely to be encountered in the majority of the public policies and programs concerned with digital inclusion.

The polemic related to failure, the role of each of the participating sectors (educational institutions, local communities and society in general) have also been analyzed. The relevance of the synergy that these projects must have has been considered as well in order to ensure that the implementation of educational initiatives in digital community spaces truly has their intended social relevance.

Keywords: education; digital and social inclusion; social vulnerability

1. Introduction

The technological advances imposed to society without the proper analysis and adequacy of teaching-learning processes make more and more critical the mission to conceive effective digital inclusion initiatives. While one decade ago matters like infrastructure and access were deemed as priorities in the democratization process of ICTs, new factors have been currently added to the problematic that regards digital inclusion.

Digital inclusion and its essence have been largely discussed and questioned. According to Mark Warschauer (2006):

\textit{Digital inclusion is a facet of social inclusion and, besides providing the right of access to the digital world for intellectual development, it consists of promoting spaces for significant cultural practices that enable the participants to become digitally literate, i. e., not only technically capable of acting in the cyberspace, but also capable of creating and producing meanings and feelings onto it.}

For the last five years, in Brazil and in other developing countries, the implantation of digital inclusion projects and programs has been possible to be observed, as well as the development of educational policies by non-governmental organizations (NGOs), by market agents and notably by the government (NETO; MIRANDA, 2010). Nevertheless, several researchers have pointed out inconsistencies in ongoing digital inclusion initiatives (ROTOHBERG, 2009).

In the search for new alternatives, current studies in this field have focused on parameters, objectives, and teaching and learning methods in order to identify which are the real implications about new technological, social, political, and educational challenges as for digital inclusion. For such, these researches have rebuilt the concepts of alphabetization and literacy so that the infoinclusion may be revised and adjusted according to the needs of the individuals excluded from the information society.

In the twenty-first century, information is transmitted at all times and news is nearly instantaneously disclosed. That occurs especially because of the development of new technologies, which enable a more instantaneous communication among people.

The arrival of the Internet allowed people to easily communicate from anywhere in the world, as if there were a short
distance between them. However, in order to make use of the digital world, it is required to have access to a computer with Internet connection, which is still a fairly expensive technology for a great part of the Brazilian population. Additionally, there are those individuals that cannot use these technologies due to their physical conditions. A visually impaired person, someone who does not have the arm movements, and people with disparate types of physical impairment face difficulties in using new technologies, from a smartphone to a desktop computer. The so called digital exclusion is so present in the daily lives of some Brazilians that it ends up excluding, even socially, this part of the population.

This situation leaves a legion of digitally excluded people, who do not receive the benefits that new technologies may provide. This article seeks to analyze different ways to fight against this digital exclusion. For that, three digital inclusion projects that have been implemented in Brazil are presented: the first, the Projeto Casa Brasil [Project Brazilian House], which has units throughout Brazil; the second, the Projeto Cidadão Conectado – Computador para Todos, [Project Connected Citizen – Computers for Everyone], part of the Brazilian Digital Inclusion Program; and the third, KHouse Profissionalizante [Vocational KHouse], an international project in which Brazil has taken part since 1996.

2. Inclusion and Exclusion

Despite being a largely discussed topic by society today, the concept of inclusion still leaves room for incoherence. According to Oliveira (2004), inclusion is “to invite to approach those who have been historically excluded or left out”. It can be noticed that when “invite” is mentioned, it seems to be a unilateral action, that is, as if those already included were not required to act to prevent the excluded ones from going back to that situation.

Another problem is that this definition finds the topic dualist, as if inclusion and exclusion were completely opposite and excluding processes that do not interact mutually. In fact, exclusion is a state within certain context and does not represent a permanent situation of an individual. Hence, a person may be included in a specific field of society whereas this same person is excluded from another, without this being considered a contradiction whatsoever.

The concept of inclusion may not be measured only by the unfavorable financial/social condition either, as if only this aspect were relevant for the inclusion process, leaving aside other matters as education, health, culture, leisure, among others. Ladeira and Amaral (1999) apud Passerino and Montardo (2007) propose a concept of inclusion as “a process that is extended throughout life and that is intended to improve the individual’s quality of life”. Thus, the authors have discarded the determinist aspect of that dualism between inclusion and exclusion and have not restrained themselves to poverty as the only relevant topic. To Sposati (1996) apud Passerino and Montardo (2007), the inclusion process depends on four basic variables, which he considers utopian: income autonomy, human development, quality of life, and equity.

Before so many concepts, it can be understood that inclusion has a multi-dimensional character. Therefore, the inclusion can be considered a process established within a wider society that seeks to satisfy certain needs, which are related to “quality of life, human development, autonomy of income, and equity of opportunities and rights for individuals and social groups that, in some stage of life, have been in disadvantage when compared to other society members” (PASSERINO; MONTARDO, 2007, p.5).

The next section addresses the relation between digital and social exclusion, explaining that one may be the cause of another and that the solution for both cases may and must be adopted concomitantly.

3. Digital and Social Exclusion

Digital exclusion has been a very recurrent topic in the 21st-century society. But what is digital exclusion? Angela Maria de Carvalho and Plácida Santos (2009) state that “when a citizen is deprived of facing, exploring, and creating new knowledge, that is called digital exclusion. Hence, this citizen begins to be left on the fringe of technologies, discussions, and knowledge that circulate and are originated by such”.

With the continuous development of information technologies, the exclusion has been increasing and causing much greater problems with consequences that affect a large part of the population.

Nevertheless, in a country like Brazil, where, according to the data provided by the Brazilian Institute of Geography and Statistics (IBGE) in 2009, 75.2% of the national population struggles to maintain a family with the wage they earn, the sociologist Sérgio Amadeu da Silveira makes some very pertinent inquiries. What is the purpose of talking about digital exclusion? Would it not be a simple result of the social exclusion? Would the fighting against it not be a consequence of the improvement of the society’s life conditions and income? In other words, until when would this
fighting be important before so many privations? (SILVEIRA, 2003, p. 18).

The answer to these questions makes one think about the reason for such a great discussion about digital exclusion when the society has, in fact, much greater problems than this one, like hunger, for instance. The fact is that digital exclusion has turned into a problem as big as many other basic needs of the human being, for technologies have become such a part of people’s lives that one can no longer live without them. For this reason, the need to have basic knowledge on how to use computers, cell phones, the Internet, etc. has become essential to everyone.

Knowledge is currently the greatest wealth a nation can have, through which one can find a job and, consequently, live in better conditions. However, most of this knowledge is acquired by the use of the so called information and communication technologies, in which the computer and the Internet are included.

In view of this idea, there is the need to fight against digital exclusion, which affects so many people and ends up increasing social exclusion even more, already so present in the daily life of Brazilians.

Therefore, the next section presents a discussion exactly about the importance to fight against digital exclusion and brings up viable options that may begin to solve this problem.

4. Fighting against Digital Exclusion

In order to attempt to reduce digital exclusion, an option would be to make it a public policy. From the moment the government takes the responsibility for fighting against digital exclusion, the chances of the majority of the population to have access to information and communication technologies will be enhanced.

With no financial conditions to have a computer and Internet connection at home, the poorest part of the population cannot access the worldwide computer network. That is why it is so important to have the support of the State. Nonetheless, according to Sérgio Amadeu da Silveira,

A public policy is not limited to the role played by the State. Without any doubt, the State must provide the largest amount of recourses, but the policy’s creation, execution, and assessment must necessarily involve local communities, social movements, and non-governmental organizations. (SILVEIRA, 2003, P. 30).

It is based on this assumption that several digital inclusion projects have been developed in regions of low human development, like Projeto Casa Brasil, Projeto Cidadão Conectado – Computador para Todos, and KHouse Profissionalizante, which will be discussed further on in this article.

The next section presents a discussion about the concept of digital inclusion and why it is, indeed, important and must be adjusted according to the local culture where it will be implemented, despite not being an absolute truth.

5. Digital Inclusion

It is common to associate the concept of digital inclusion with the availability of computational and network resources and to disregard whether the user knows how to use these. Having said that, Sampaio postulates that digital inclusion “is the right to have access to the digital world for intellectual development (education, knowledge generation, participation, and creation) and for the development of technical and operational capacity” (SAMPAIO apud SPIGAROLI; SANTOS; SCHLÜNZEN (2005) apud PASSERINO; MONTARDO, 2007, p. 6).

Thus, he managed to align the technical instruments (computers, software, Internet) to intellectual development, whether within the scope of education or encouraging participation and knowledge dissemination. Therefore, so that Information and Communication Technologies (ICTs) be effective, a greater commitment on the social and human side of inclusion processes would be required, not only worrying about technology, but, mainly, about the transformation of society.

To Warschauer (2006) apud Passerino and Montardo (2007), “the ability to access, adapt, and create new knowledge by using new ICTs is currently decisive for social inclusion”. He thinks of digital inclusion from four types of resources: physical resources (computer and connectivity), digital resources (digital material available online with regard to contents and language), human resources (literacy and education for use of informatics and online communication), and social resources (communitarian, institutional, and society structures that support access to ICTs). If these resources are united, the implementation of digital inclusion processes becomes closer to reality.

Local realities, however, must be respected as to their singularities, limitations, and their own interests. Digital inclusion must not be perceived as the only path to human progress, given that the values of a society are related to their own culture. Using the indigenous culture as an example, it is impractical to include certain indigenous tribe in
this process if they are not interested. One should bear in mind that digital inclusion is an alternative and not the absolute truth of all societies.

Costa and Lemos (2005) apud Passerino and Montardo (2007) analyzed the digital inclusion process from four types of capital: social, technical, cultural, and intellectual. Following this idea, Lemos (2004) apud Passerino and Montardo (2007) states that “the cultural capital is the memory of a society; the social, their identity and political power; the intellectual, the individual competence; and the technical, the power of action and communication”. These authors still classify the inclusion process in three types of semantics: technical, economic, and cognitive. They assert:

Our point of view (from which derives the evaluation matrix of digital inclusion projects) is based on the premise that “inclusion” processes must be analyzed as to their economic indicators (having financial conditions to access new technologies), cognitive indicators (having a critical and capable point of view regardless of the use and approval of new digital means), and technical indicators (having operational knowledge on programs and Internet access). (COSTA; LEMOS apud PASSERINO; MONTARDO, 2007, p. 9).

Based on this thought of Costa and Lemos (2005) apud Passerino and Montardo (2007), it can be noticed that digital inclusion requires a lot more than a computer and Internet access. The individual is also required to have technical abilities to perform activities in the digital world and cognitive abilities, providing not only digital usability, but also, at last, digital accessibility.

The next section addresses digital accessibility for physically impaired individuals, who also face great difficulties in being included in the digital era, just like the less financially favored people.

6. Digital Accessibility

In the 1940s, the term “accessibility” arose related to issues that facilitate the life of physically impaired people in the sense of overcoming physical barriers on streets and transportations in order to enable their physical and professional rehabilitation, that is, to provide them physical access to locations. Only after 1990, with the popularization of the Internet, that the need to build virtual environments accessible to anyone has been noticed. Thus, digital accessibility considerably differs from physical accessibility.

Conforto and Santarosa (2002) apud Passerino and Montardo (2007) made the following statement about digital accessibility:

[…] like a synonym of approach, a way to make available to every individual interfaces that respect their needs and preferences […]. Discussions about physical accessibility are frequently restrained to physical or sensorial limitations of those with special needs, but these aspects may bring benefits to a much larger number of users, enabling that the knowledge on the web may become accessible to a much wider audience without impairing its graphical or functional features. (CONFORTO; SANTAROSA apud PASSERINO; MONTARDO, 2007, p. 13).

It is common to be confused with accessibility and usability. The latter is essentially related to the user’s ability to understand and realize the strategies of the software use. The former focus on the conditions for use, on how will be the contact between the software and the individual in qualitative terms.

Therefore, it is understood that accessibility and digital inclusion refer not only to the use of computers and to the access to information networks, but also to the development of intellectual abilities to access this process. Thus, digital inclusion is perceived as a path to reach the so discussed social inclusion. In order to stimulate this process, not only public initiatives are required, but also the civil society’s support; in other word, it is a work that involves all citizens.

7. Digital Inclusion Projects in Brazil

This article addresses some projects that promote digital inclusion in Brazil, which are Projeto Casa Brasil, Projeto Cidadão Conectado – Computador para Todos, and KHouse Profissionalizante.

- Projeto Casa Brasil

This project takes connectivity and computers to low human development communities and aligns informatics with culture, art, entertainment, communitarian communication, and popular participation. There are several units throughout Brazil and, according to the project’s official website, each unit is managed by the support of scholar
students of extension courses provided by the National Council for Scientific and Technological Development (CNPq), along with a local partner and a Managing Council created by the community.

- **Projeto Cidadão Conectado – Computador para Todos**
  This project is part of the Brazilian Digital Inclusion Program and dates from 2003, when it was created by the government of Luís Inácio Lula da Silva, Brazilian former President.
  According to the project’s website, their objective is to enable that those who do not have access to a computer may acquire this equipment. The computers of the project have free software operating system and applications. *Cidadão Conectado* also enables that those who acquire a computer may have access to technical assistance as well as to support for the use of applications, which is responsibility of an accredited company and is provided for one year.

- **Projeto KHouse Profissionalizante**
  This project was created from project Kidlink, an international organization that comprises teachers and students from all over the world using the Internet and in which Brazil has been taken part since 1996. After Kidlink, KHouse was created by a research group of the Pontifical Catholic University of Rio de Janeiro, PUC-Rio.
  This project has units in eight Brazilian states and promotes long-distance cooperative education by using the network.

8. Digital Inclusion and Social Policies

Inclusion promoted by social policies is an essential issue that leads to the so called integration policies that target the reduction of social inequalities.

It is required to organize work processes that would provide more visibility to unfavorable social groups and that would incorporate within their scope these groups’ demands, articulating them with other social actions. Thus, social exclusion and inclusion processes must be thought and analyzed in order to organize new practices and methodologies that enclose these population segments and fulfill their needs and demands (CARNEIRO JÚNIOR et al, 2006).

Within this perspective, digital inclusion, when concerned with social inclusion, must favor actions in democratic spaces that promote the construction of citizenship, where policies, actions, and programs that include the so called “digitally excluded” are required to decrease the number of people that are within the process of vulnerability. Teachers and students involved in learning cooperative environments and that prioritize the development of knowledge begin to look at the individuals “excluded” from society in a different way, because they are placed in a new position, one that encourages and accelerates knowledge production processes. Therefore, students start living the constructive acting experience, that is, significant actions in environments they learn. Children and youngsters have been the preferable target of these actions offered by educational institutions, in which initiatives of assistance nature frequently prevail. They consist of a way to rescue school dropouts or to motivate those who attend school in order to promote their reapproximation to the school environment.

Despite all that, the development of these tools within the current globalization process may create new elements that will contribute to the increase in economic inequalities. In more developed countries, there are expressive levels of internet connection, which are extremely ahead of those in the poorest areas in the planet. Regions with the smallest per capita income and/or with the most concentrated income are exactly the ones that display the most eloquent indicators of infoexclusion (PROENZA, 2003).

Some data about digital inclusion make us wonder if the growth in the amount of people connected to the Internet means, indeed, qualified access to ICTs and if this access has provided significant improvement to these people’s quality of life. In countries with less technological resources, there is an economic factor that limits digital inclusion: their infrastructure and the number of computers per inhabitant are still insufficient (MATTOS; CHAGAS, 2008).

Parallelly, one of the key-points has been the reduction in the so called “digital exclusion”, understood as the rise of one more socioeconomic barrier among individuals, families, companies, and geographic regions as a result of the inequality as to the access and use of ICTs, currently and mostly represented by the Internet. Digital exclusion places many obstacles to the development of personal abilities, besides reducing the number of opportunities in the work market and the access to goods, services, and information. Therefore, it is a challenge to implement a digital inclusion process in communities with a high rate of functional analphabets, for instance. Nevertheless, it is possible
to notice the importance of defining a set of indicators that compare people’s lives before and after having taken place in digital inclusion programs and that evaluate the level of social inclusion, of later integration into the work market and of improvements in their quality of life. These projects must take the lead in the following aspects: integration into the work market and income generation, improvements in the relation between citizens and public policies, increase in cultural and social values, and development of citizenship and of technological knowledge broadcast, among others (MATTOS; CHAGAS, 2008).

More lasting issues and those less easy to solve still persist, especially with regard to the social and cultural exclusion related to the way people enunciate the meanings of ICTs and act on them. The recurring importance of variables, such as age, socioeconomic status, educational background, family composition, gender, and geographic location, provides information about the public online (LENHART et al, 2003).

Some factors, among others, associated with the lack of use of ICTs are emphasized: income/economic status: low income is associated with digital exclusion; age: later ages are related to low levels of access; culture/popular participation: communities with higher levels of social contact tend to use more ICTs. The relevance of these inequalities among different social groups for the results of use of ICTs is still significant. If individuals that come from deprived social groups have a qualitatively and quantitatively diminished experience of using these technologies, so there is a risk that they will be left behind by those “super-served” technologically.

Digital exclusion may be a multi-dimensional social problem and requires a multi-dimensional intervention. Many studies suggest that the essential solution is beyond the mere consideration of information and infrastructure availability: they require the government to interfere in deeply rooted factors that, directly or indirectly, have caused this situation (YU, 2006).

Digital inclusion has become, therefore, a field of power within the social space, in which distinct social groups occupy different positions, constituting an innovating and globalized axis with educational actions for universal access, increasing the communication skills between individuals and social groups. Development is not limited to the matter of technological equipment, that is, to the quantitative increase in digital inclusion access, but to the strengthening of educational systems that empower the use of ICTs (BORDIEU, 1996).

Hence, there is no linearity between digital and social inclusion. Some variables related to the social and economic environment, the role of the State and governors, and the social representation of the meaning of social welfare, among others, are as relevant as the access to ICTs. There is no doubt that there are difficulties in managing digital inclusion structuring programs due to the lack of coordination of synergy possibilities, i.e., interactions between programs.

ICTs certainly raise the local access to information and to social contact of those socially unfavorable groups outside the geographic boundaries of their communities and origin groups, enabling more democratic manners of social participation. The issue is to know how educational spaces can use the technology (particularly the creative media) to develop a greater participation in the community’s needs and interests. Within this process, the community also becomes an audience for the creative production of their students. Of course the Internet itself may be seen as a public space of this nature, although it has been more and more taken by business imperatives and, in the case of schools, used for public relations. Therefore, keeping non-commercial and participative spaces on the Internet is currently a significant matter for public policies, which do not mean officially authorized and controlled spaces (BIGUM, 2002).

In this context, the creation and maintenance of the so called telecentres constitute public and free spaces that seek to provide access to ICTs, with computers connected to the Internet, free and assisted navigation, courses, and other activities that encourage local development in its several dimensions. It must be inquired and deeply discussed if these spaces applied to low-income populations result, indeed, in the digital inclusion emphasized by the theory. The biggest question and the assessment one should make are if they play the social role they should play: if the use of Internet effectively raises citizenship, fights against poverty, and ensures the strengthening of local development in socially vulnerable communities. Given these arguments and based on a case study, this article aimed to analyze and discuss some variables that may compromise the efficiency of digital inclusion projects and their entire context.

9. Conclusion

Digital inclusion projects and programs should, in theory, generate work and income, increase citizenship, popularize science and arts, provide access, and create knowledge and information, among others. These must be related to the generation of work, housing, education, political participation in order to become social inclusion programs.
Nevertheless, the reality of many socially vulnerable communities is different, like the experience reported here. The development of social projects on digital inclusion led to some thinking that deserves to be highlighted. Formative and educational activities must build pillars that make the actions of inclusion and social commitment of public educational institutions real. On the other hand, regardless of having interest and resources to take these actions, they cannot be implemented if some minimal conditions are not ensured. The community, institution, and their representatives are important for the effectiveness of any project. Some public policies, like safety, must be assured and be always present. Therefore, public actions and educational processes that are able to face and modify realities urgently need to be promoted.

It is noticed that flaws are not in the individuals, but in the context they live. The true model of a social development project does not consist of isolated actions, regardless of the size of the public, but it is a result of the integration of these actions. Hence, a digital inclusion project must go beyond the democratization of information, that is, it must enable the population to have access to digital communication means by opening spaces and providing machines and connectivity. The concept of digital inclusion is wide and must be associated to that of social inclusion. Otherwise, efforts and resources might be wasted in limited, reducing, and even incoherent processes.

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