An Exploratory Study about the Influence of the Web 2.0 on Digital Education of Socially Vulnerable Youths

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***Abstract.** This paper presents the results of an exploratory study with socially vulnerable youths with the aim of analyzing the implications of Web 2.0 to the digital education of these people. The methodology is based on a framework of practices in qualitative research. The results demonstrated that Web 2.0 has important implications along digital education process of youths who faces digital divide, enabling the development of informational capabilities of these individuals.*

1. Introduction

Over the past decade, Brazil, like other developing countries, has experienced a growing implementation of projects and programs of digital inclusion, as well as the development of educational policies by non-governmental organizations (NGOs), businesses, and notably, the Government [Neto and Miranda 2010; Santarosa, Conforto and Schneider 2013].

However, technological advances imposed to society without a proper analysis of education and learning processes creates a critical mission to design effective actions to face digital divide. Regarding that, it is important to say that the most excluded sub-group of population of these movements is composed by socially vulnerable individuals.

According to Oliveira (1995), vulnerable social groups could be defined as those sets or subsets of the population at the poverty line, considering that not all are indigent. Thus, Carneiro and Veiga (2004) conclude that, vulnerabilities and risks refer to the notions of deprivation and exclusion. Individuals, families and communities are vulnerable when they don't have material or immaterial resources to successfully address the risks to which they are exposed, or capacity to adopt courses of actions / strategies that allow them to achieve reasonable levels of personal / collective security.

If a decade ago, issues such as infrastructure and access were seen as priorities in the process of democratization of ICT (Information and Communication Technologies), nowadays new factors have been added with the problems surrounding digital divide [Meneses 2011]. Therefore, new investigative efforts are needed in this context, in order to consider the emerging challenges in the field of digital education.
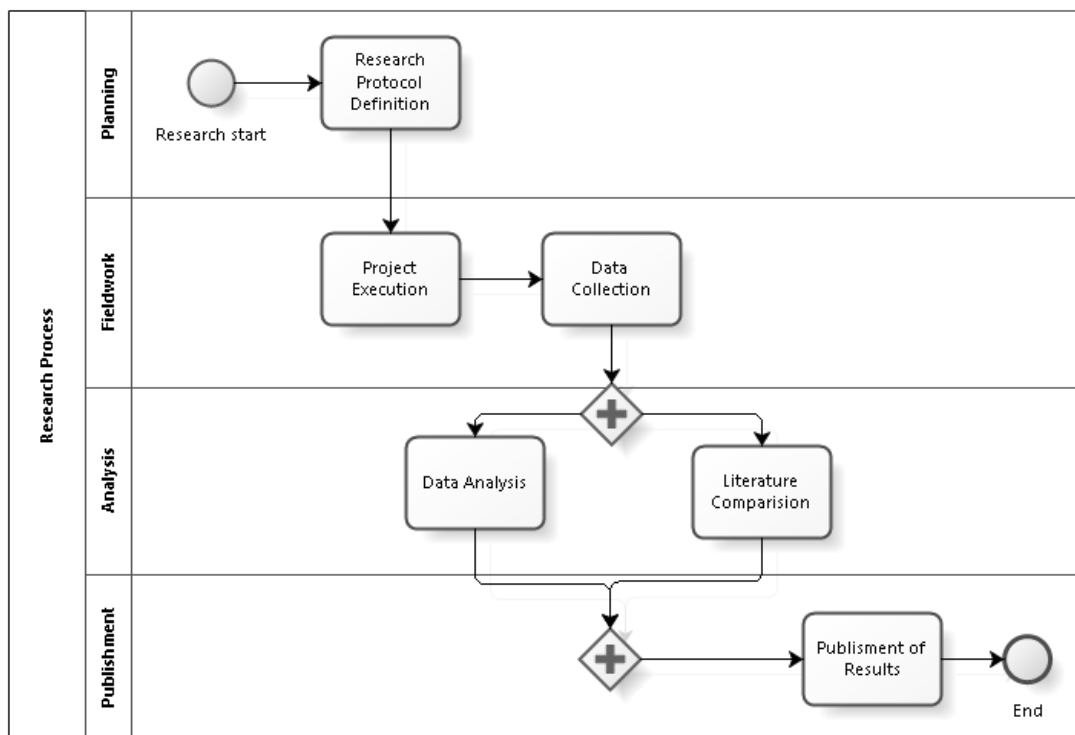
2. Methodology

2.1 Research Objective

To analyze the development of socially vulnerable youth's digital education, who experiences a primary process of digital education, through Web 2.0 platform.

2.2 Research Process

This work was conducted following a methodological framework that consists in four steps, as illustrated in Figure 1. Then, we are going to make a brief explanation of this research framework.

Figure 1. Methodological Framework

During Planning phase, we assessed the problem of the digital divide and its implications for socially vulnerable youths. Given the nature of the problem, it was necessary to conduct this study based on qualitative research. Thus, we adopted an exploratory strategy in order to suggest hypotheses to explain the phenomenon. The definition of the theoretical framework allowed us to identify fundamental concepts that give sustenance to our research.

In the Fieldwork phase, we did the operational part of the study, through an extension project promoted by the university. To compose the unit of analysis (group of socially vulnerable youths) we recruited volunteers from public schools. The extension course was developed by an interdisciplinary team of educators and students of the Information Systems course of the University. Additionally the extension project was structured into workshops given to the volunteers. At each workshop meeting, new themes involving Web 2.0 were explored. In other words, the dynamics of execution of workshops was focused in questions and problems proposed to young people, so they

were stimulated to look for creative solutions with the help of Web 2.0. Data collection was carried out through a multi-instrumental approach. We have adopted techniques such as observation, focus groups, and ethnographic approaches. While the field study has been developed, data collected has been analyzed in a gradative way.

In the Analysis phase, data was analyzed applying techniques of Grounded Theory, enabling the identification of patterns and concepts. To support our perceptions, we crossed our results with related literature. In the last phase, called Publishment, the results were consolidated into a report for disclosure.

3. Theoretical Background

In the context of Digital Education, easily we come across topics such as digital inclusion, digital alphabetization and digital literacy. In practice, the lack of clear definitions for these concepts can be confusing and difficult to establish goals of a study and even its development. Thus, we present below a detailed definition of each of these concepts, as well as their relationships.

Starting the digital inclusion, we must know that this it is a logical reaction to a serious problem of socially vulnerable populations: the digital divide. So Araujo (2008) considers digital inclusion one of the primary processes in Digital Education, because although we live in a democratic society, the opportunities are not equal for all citizens. Additionally, Silva (2005) defends digital inclusion as a new factor of citizenship. And, as a matter of ethics, this opportunity should be offered to all. In the quest for equality in the right to inclusion, the school can make a contribution by making ICT accessible to society. However, it is noteworthy that the participation only with access to the physical structure is a misconception [Almeida 2005]. Digital divide is not an issue that can be resolved by simply buying computers for socially vulnerable people and teaching people how to use this or that software [Silva 2005].

The concepts Alphabetization and Literacy have very similar meanings, but are not considered the same thing [Passos, Souza and Santos 2007]. Alphabetization can be understood as the simple ability to recognize the alphabet symbols and make the relationships necessary for reading and writing. Literacy, however, is the power to understand, assimilate, rework and come to an understanding that allows a conscious action [Silva 2005].

Thus, Buzato (2003) considers that alphabetized people are not necessarily literate people. Even knowing how to read and write, that is, encode and decode texts, many people have not learned to build an argument, write a formal document or interpret a text, for example. In addition, digital literacy is not just to teach the person to encode and decode texts, or how to use graphical interfaces and software. Digital literacy is the ability to construct meaning and work interactively with broad and electronic information [Buzato 2003].

Amidst this scenario, the maturing of the use of the Internet and the search for greater social integration have led to a transformation in the Web so arose a new informational philosophy, Web 2.0, which is more than tools and sites. Web 2.0 is a concept of convergence of human relations, brokered by the World Wide Web. Considered the second online service version, Web 2.0 uses the Internet as an open platform to support functions previously performed by software installed on a local computer [Silva 2005]. In addition, O'Reilly (2005) argues that it is not just the

combination of services, but the consolidation of collective intelligence in performing and collaborative work management in an open network that everyone can participate.

The use of Web 2.0 enhances not only the connection and instant access to information, but mainly the participation and co-authoring through various tools available on the net [Almeida 2005]. Through Web 2.0 tools you can post all the online information content, publicly or privately, raising the degree of sharing and increasing disclosure in order to enhance the teaching-learning process [Luvizotto and Fusco 2009]. The emergence of Web 2.0 is something that goes far beyond mere technological field. It is more than a technological revolution, a social and cultural revolution, expanding to all areas of society.

In a few years, Web 2.0 has dramatically changed the way people use the Internet and interact with others, with the information and knowledge [Mota 2009]. Also in this context, D'Andrea (2007) considers that if the digital literacy process involves the construction of individuals able to deal with new technologies so using Web 2.0 makes it even more necessary to encourage the person to deal with interactive processes mediated by computer.

4. Results and discussions

Considering that information technology has been increasingly present in people's lives, it is essential to bring it to the classroom for enabling valuable knowledge to the students. Thus, as we said, for this work we have developed an initiative of extension, called Inclusion Project 2.0. For implementing this action of extension we counted on wide dissemination for schools through the university page and Web 2.0 social networks.

We can better understand the *modus operandi* of the research by taking a look at the figure 2 that illustrates how university acts to recruit vulnerable youths from community to compose groups of collaborative learning. Those groups works like a course but not in a traditional way, rather than that, we stimulate values from Web 2.0 such as: collaboration, social networking, collaborative intelligence, and mainly, self-learning. One can ask yourself: what's the reason for making that way? The answer is too simple: we can create an ambient of collaborative learning like claims Web. That can favor us to observe how youths develop their abilities and techniques in a collaborative ambient, especially when this ambient is based on Web 2.0 philosophy.

Once we promoted that, we can collect data to make inferences and create hypothesis which we are going to discuss soon. In fact, some findings are not new. For example, is widely known that youths are fascinated by social networks and technology even if they are at digital divide line. We also know that the access to computers has increased along the past years. But there are some misunderstandings. We mean, quantity does not mean that digital education is receiving the right attention, and that's the point we want focus here. That's why this empirically study was developed, to investigate what happens when we put technology and people to work together in a collaborative way. We did so.
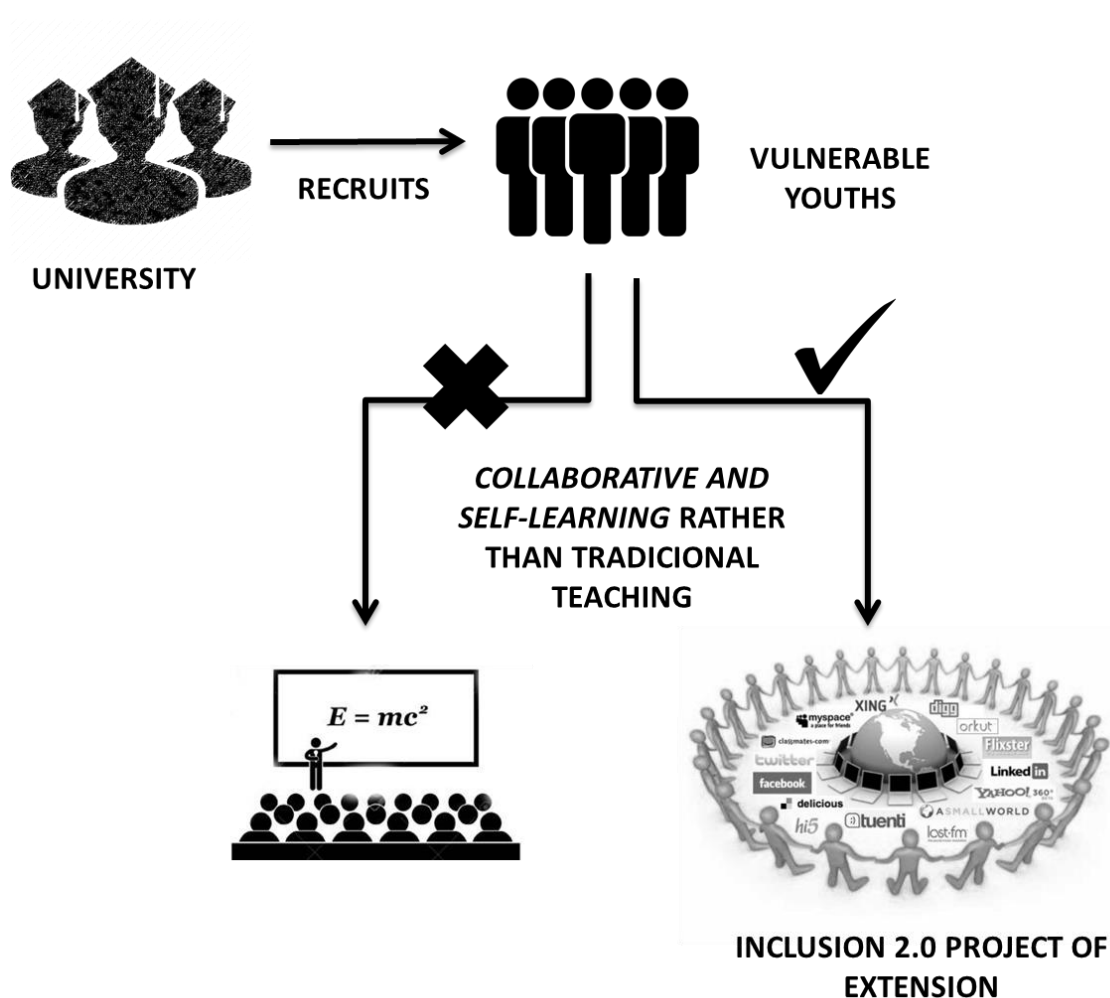
Figure 2. Operation of research

This was possible, because through the results, we realized that Web 2.0 is often responsible for the first contact of these youths with the computer. That is, even not having an adequate digital education, participants have some contact with computer because social networks attract them. But without stimulus, the student's experience turns out to be superficial. That is, youths don't know how to take advantage of what the Web 2.0 can offer towards their learning. We note how important is the role of schools to the process of digital education, in order to give directions and instigate these young people for getting the best experience.

Regarding that, Ribeiro, Longaray and Behar (2011) conducted a study focused on the Web 2.0 experience as an object of learning for development of creativity. According to these authors, a creative student can stablish open relationships with their own knowledge, and the teacher should allow their student find their own way of learning.

Based on this, we can infer that teachers play a strategic role in fostering the development of informational abilities of students, mainly to direct the conscious experience that Web 2.0 can offer. This idea is reinforced by Marcon, Machado and Carvalho (2012) when they point to the importance of the pedagogical mediator's role to direct the activities, and for creating learning networks.

As more students became familiar with technology, increases the flow of information obtained and shared by them, often with mutual help. Often, we observed that discoveries made by youths gets other ways, leading to debates connected to the classroom, social aspects and more complex investigation issues. Without any specific knowledge in computer science, youths generally has looked for courses on hardware, hypertext, and web programming, among a variety of other themes.

In our point of view, when the experience of the students with the Web increases we can observe that the dependence on teachers decreases. These observations are supported by the work performed by Ribeiro, Large and Behar (2012), since according to the authors, the new technological tools require a more proactive and independent attitude, and that requires beyond the basic skills to computer use. In addition, Guimarães (2012) points out that for this to happen it is essential that the individual assumes the central role in the learning process and cannot be treated as a passive receiver of information.

Results also shows that Web 2.0 provides greater motivation for youths who seeks knowledge, stimulating self-learning. This proved to be a valuable way for youths to develop their informational capabilities. We have not observed turn over in the Project. This is confirmed by data collected. One said:

Partipant A: "*I can't miss a class because every time I'm curious about what's coming… and I don't wanna lose that*".

Other young said:

Participant B: "*Web 2.0 is better because I can talk to my frieds by many way. I've got facebook, skype, and so on, everything I have. If I don't, I go and make it*".

Self-learning is stimulated by us, by helping them out to find information to solve their problems, instead teaching them how to do the way we know. That is, we wanted to see their behavior when stimulated to learn by themselves.

The dynamics of the self-learning stimulus adopted in the workshops was used conceptually similar way, by Mitra (2003), through the study that became known worldwide as The Wole in The Wall. Still according to Mitra (2003), in the current teaching model, the teacher determines the method of study and students simply meet the proposal, but what should happen is just the opposite. First, the teacher presents the theme and then allows students to freely create their research methods in search of a solution.

That is, once presented the problem, students are encouraged to make their own discoveries without the direct intervention of the educator. What is expected of this process is to stimulate the role reversal made before starting a new theme, promoting incentives for the process of seeking and acquiring knowledge.

Thus, the results obtained allow us to express that Web 2.0 supports important stages of digital education of individuals. When the experience of Web 2.0 is presented to the youths, the maturity of the usage also tends to accompany such development (Figure 3). In other words, the individual find in the Web 2.0, the instrumentation required to develop their informational capabilities. Whether through social networks, wikis, blogs, EAD educational channels, or any other form of channels, the young have

access to a simple way to integrate the network of information sharing, searching and creating knowledge.
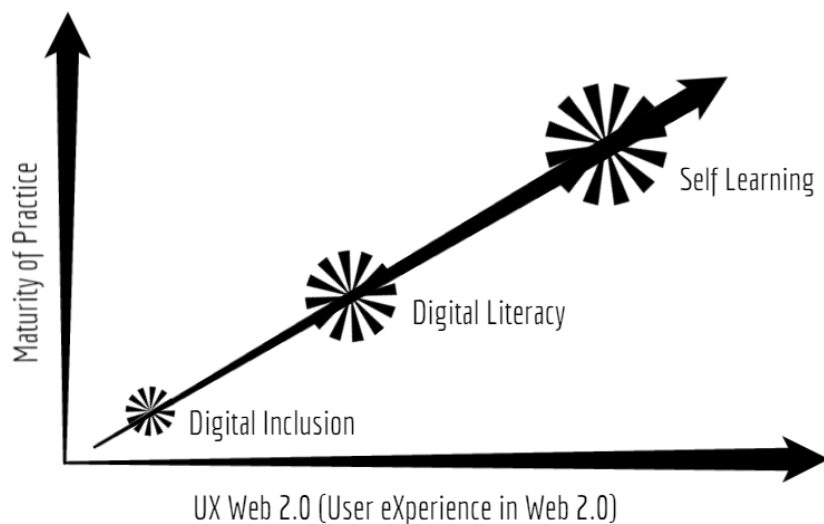
Figure 3. Stages of Development provided by Web 2.0

Figure 3 represents the consolidation of our hypotheses based on our qualitative analysis, supported by related literature. Through Web 2.0 youths can develop their experience (UX line), reaching the higher levels of maturity (Maturity Line). That is, they are able to evolve toward self-learning. This is extremely important because they turn themselves autodidactic, using Web 2.0 as a useful tool to deal with the problems they face.

5. Conclusion

This study allows us to state that the Web 2.0 has important implications throughout the digital education cycle. Social networks, blogs, wikis, among other numerous services are attractive means to young people. The free access to information is something restricted to socially vulnerable youth, however, the desire for social integration aroused by Web 2.0 is often responsible for the primary experience of these young people with the computer, thus promoting the digital inclusion process.

The harmony existing between digital education and Web 2.0 it's not accidental since it is known that one of the suggestions of Web 2.0 is the enhancement of networks of people rather than computer networks, ie, the focus becomes the user. With Web 2.0 is different because the online tools arouse the interest of users. Social networks are a great example of this synergy. From this moment on socially vulnerable young people are on the network for developing its informational capabilities, but still dependent on pedagogical direction, to make them aware of the possibilities offered by Web 2.0.

We note the need to involve the school in the development process of informational capacities of these people by giving them the right guidance, so that they reach the level of proactivity and network self-learning. Web 2.0 has proven to be a democratic channel search, by sharing and collaborative construction of knowledge by providing free access to information with socially vulnerable populations.

In addition, a factor to be better exploited by future work it would be the study of the ways in which Web 2.0 can act for finding solutions to some of the problems faced by socially vulnerable youngsters. At public schools we advise the implementation of initiatives like proposed in these study, that takes in account the connectivity of network relations, provided by Web 2.0, which can be used as an adjunct potential for the development of concrete solutions to real problems of socially vulnerable populations.

References

Almeida, M. E. B. (2005) "Letramento digital e hipertexto: contribuições à Educação". In: Nize M.C. Pellanda; Elisa T. M. Schlünzen; Klaus S. Junior. (Org.). Inclusão digital: tecendo redes afetivas/cognitivas. Rio de Janeiro: DP&A.

Araújo, R. S. (2008) "Letramento Digital: Conceitos e Pré-Conceitos. In: 2º Simpósio Hipertexto e Tecnologias na Educação". Recife: UFPE.

Buzato, Marcelo E. K. (2003) "Letramento digital abre portas para o conhecimento". EducaRede, 2003. Available in: <www.educarede.com.br>. Accessed in: 12/03/2015.

Carneiro, C. B. L.; Veiga, L. (2004) "O conceito de inclusão, dimensões e indicadores". Belo Horizonte: Secretaria Municipal de Coordenação da Política Social.

D'Andréa, C. F. B. (2007) "Ler, escrever, editar, comentar, votar... Os desafios do letramento digital na web 2.0", Revista Língua Escrita, Belo Horizonte, v.2, n. 2.

Guimarães, L. S. R. (2012) "O aluno e a sala de aula virtual". In: LITTO, Fredric & FORMIGA, Marcos (orgs). Educação a distância: o estado da arte. Volume II. São Paulo: Pearson Education do Brasil.

Luzivotto, C. K.; Fusco, E. (2009) "A Transmissão da Tradição Gaúcha e o Processo Ensino-Aprendizagem, Utilizando Ferramentas da Web 2.0". In: XX Simpósio Brasileiro de Informática na Educação. Florianópolis: SBIE.

Marcon, K; Machado, J. B; Carvalho, M. J. S. (2012) "Arquiteturas Pedagógicas e Sociais: Uma Experiência no Facebook". In: XXIII Simpósio Brasileiro de Informática na Educação. Rio de Janeiro: SBIE.

Meneses, S. C. P. (2011) "UCA - Um Computador por Aluno: Era da Inclusão Digital". In: XXII Simpósio Brasileiro de Informática na Educação. Aracajú: SBIE.

Mitra, S. (2003) "Minimally Invasive Education: A progress report on the Hole in the wall experiments". London: British Journal of Educational Technology, 34(3), 367-371.

Mota, J. C. (2009) "Da Web 2.0 ao E-Learning 2.0: Aprender na Rede". Dissertação (Mestrado em Informática). Portugal: Universidade Aberta, Lisboa.

Neto, B. M.; Miranda A.L.C. (2010) "Uso da tecnologia e acesso à informação pelos usuários do programa Gesac e de ações de inclusão digital do governo brasileiro". Revista IBICT. Brasília, v. 3, n. 2, p.81-96.

Oliveira, F. (1995) "A questão do Estado: vulnerabilidade social e carência de direitos". In: Subsídios à Conferência Nacional de Assistência Social. Brasília: CNAS.

O'Reilly, T. (2005) "What Is Web 2.0 - Design Patterns and Business Models for the Next Generation of Software", O'Reilly Publishing.

Passos, R; Souza, J. F. C; Santos, G. C. (2007) "Armadilhas do letramento digital: Habilidades e competências para a recuperação da informação. In: 16º COLE - Congresso de Leitura do Brasil. Campina Grande: EDUFPB.

Ribeiro, A. C. R; Large, T. P. F;, A. N. C; Behar, P. A. (2012) "Letramento Digital na Ciberinfância: uma leitura a partir do ambiente virtual Planeta ROODA 2.0". In: XXIII Simpósio Brasileiro de Informática na Educação. Rio de Janeiro: SBIE.

Ribeiro, A. C. R; Longaray, A. N. C; Behar, P. A. (2011) "Práticas Criativas na Web 2.0: a construção de um objeto de aprendizagem". In: XXII Simpósio Brasileiro de Informática na Educação. Aracajú: SBIE.

Santarosa, L. M. C; Conforto, D; Schneider, F. C. (2013) "Inclusão Sociodigital no Contexto UCA Total". In: Simpósio Brasileiro de Informática na Educação. In: XXIV Simpósio Brasileiro de Informática na Educação. Rio Grande do Sul: SBIE.

Silva, H. (2005) "Inclusão digital e educação para competência informacional: uma questão de ética e cidadania". Brasília: Ciência da Informação, v.34, n.1.