

# **BET K-12: What do Brazilian teachers in disadvantaged schools think of ICTs?**

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## **Abstract**

This paper aims at presenting an ongoing project on the use of Information and Communication Technologies (ICTs) in the in-service training of primary school teachers, working in community schools in the area of Salvador Bahia (State of Bahia, Brazil). The project whose acronym is BET K-12: Brazilian eLearning Teacher Training in K-12 is managed in collaboration by the University of Lugano (Switzerland) and the CEAP - Centro de Estudos e Assessoria Pedagógica, and is funded by the Swiss National Science Foundation and the Swiss Agency for Development and Cooperation. BET K-12 combines regional development and research, fostering the use of ICTs for development, while, at the same time, assessing it, focusing namely on the issues of Access, Impact and Quality.

The paper is organized as follows: a first section is devoted to briefly outline the role that ICTs can play in improving teacher training experiences in developing countries. The second section works like a bridge between the first one and the detailed project presentation. Its aim is to provide an overview of current activities being run in Brazil and to stress the importance of using ICTs for teacher training in Brazil in these particular years.

The third section presents the BET-K12 project approach in detail, in its operational part: online courses developed at CEAP and in its research part: aiming at investigate the issue of Access, Impact and Quality in the field of ICTs and Teacher Training in Brazil.

## **INTRODUCTION**

This paper presents a project to introduce ICTs in the training of teachers working in disadvantaged community developed by the Centro de Estudos e Assessoria Pedagógica (CEAP) and the The New Media in Education Lab (NewMinE Lab) of the University of Lugano.

CEAP is an institution dealing with teacher training matters in the context of Salvador de Bahia since 1993. Its main target are teachers working in community schools and coming from disadvantaged areas. In the last years CEAP focused on preparing teachers for the vestibular exam, - the entry test to universities - and on supporting teachers coming from poor areas who were able to enter university but do not have the same knowledge as their university colleagues.

The NewMinE Lab is a laboratory of the University of Lugano born in 2002 dealing with researches and projects in the eLearning field in partnership with private companies and public institutions

In 2004 the collaboration between CEAP and the NewMinE Lab began; the NewMinE Lab has been charged with the exploration of ways in which eLearning could be integrated into the CEAP curricula, especially to support teachers enrolled in universities. CEAP and NewMinE Lab teams decided to introduce into the CEAP curriculum three blended learning courses: a course of computer literacy, a course on the use of Information and Communication Technologies (ICTs) in educational contexts, and a course on Communication Theories. Within the CEAP curriculum a course per year is delivered to two classes of 30 teachers, the large majority of whom (59 out of 60) are women.

It follows a brief description of the above-mentioned courses:

- **Computer Literacy Course** Taking into consideration the lack of ICTs exposure of teachers coming from disadvantaged areas, it has been decided to deliver the first course completely in presentia. The contents of the course have been designed adapting the ECDL (European Computer Driving License) program to the given context. Course modules are presented in the table below:

<b>Computer Literacy Course Modules</b>
Module 1: Basic Concepts of Information Technologies
Module 2: Using the Computer and Managing Files
Module 3: Word Processing
Module 4: Spreadsheet
Module 5: Presentation
Module 6: Internet and Email
Module 7: Introduction to Moodle Platform

Tab. 1: Computer Literacy Course Modules

The last module, introduction to Moodle Platform, presents to students the Learning Management System used to delivered the next two courses.

The first edition of this course started in September 2005 and will end in September 2006.

- **ICTs in Educational Context Course** At the second year the course ♦ICTs in Educational Context♦ is being offered to teachers. The course lasts 20 hours and is organized in three main sections: Qualitative Analysis of Websites, How to Learn Online, and How to Teach Online. This course is offered on Moodle in a blended modality. The contents have been developed by the NewMinE Lab team and have been localized by a student of the University of Lugano who did a three-month internship at CEAP together with the CEAP team. The first edition of the course will start in October 2006.
- **Communication Theories Course** The last course delivered through Moodle in a blended modality is integrated into the third year of CEAP curriculum. The course lasts 60 hours, and its divided in three sections of 20 hours each: Language, Logic and Argumentation, Text Production of Speech Acts. The first edition of the course will be delivered in 2007, at the moment materials are in development.

## **TEACHER TRAINING IN BRAZIL**

### **The Context**

In 1996 the Brazilian government decided that teachers at all levels had to obtain an academic degree within 2007, in order to continue practicing. Due to the government decision, the demand for in-service teacher training dramatically increased.

In Brazil almost 80% of primary school teachers working from grade 1 to grade 4 have not a higher education degree and this figure increases to 95% if considering teachers working in rural areas. The same happens with teachers working from grade 5 to grade 8: almost 24% have not a higher education degree and this figure increases to 55% if considering teachers working in rural areas

In this context, the crucial role ICTs could play in fulfilling this urgent need of teacher training lead to the creation of many programs involving, at different levels of integration, eLearning activities. However, researches and evaluation studies do not always keep the pace as program implementation.

Moreover, Brazil has a consistent number of teachers working in the so-called ♦community schools♦, i.e. schools promoted and sustained by disadvantaged communities. Often teachers working in this kind of schools do not have access to good quality education during their own school period and lack knowledge and training. eLearning is an option to reduce the gap between the level of education of teachers in community schools and in public school, giving to the first ones the possibility of attending more frequently training courses, without moving from their neighborhood to the training center for each training session (teachers often face trip of more than two hours by bus to reach training centers).

### **The Issue of Community School**

The phenomenon of the so called ♦community schools♦ arose at the beginning of 80' in Central and South America to tackle the lack of primary public schools in disadvantaged areas in different states of the continent. Community Schools are usually placed in sub-urban areas of big cities, and are hosted in shaky buildings with small and not aerated classrooms. These areas face all social problems caused by poorness: high rate of unemployment, domestic and social violence, and lack of infrastructures and of basic social services as schools, hospitals and means of transport.

Community Schools are funded by community associations usually formed by young people, mothers and religious institutions with the aim of giving to children living in areas where public schools are insufficient or totally absent a chance of education. The school is totally financed and managed by the community association and teachers are chosen by the community from the community and often do not have enough preparation to offer to children a quality education comparable to other kinds of schools, e.g. public or private schools.

### **THE BET K-12 PROJECT: CONTEXT, GOALS AND STRUCTURE**

The urgent need of studying the impact of eLearning in primary school teacher training in Brazil and assessing its possible applications and advantages, as well as success conditions and shortcomings arose soon after the beginning of the collaboration between CEAP and the NewMinE Lab and the idea of the BET K-12 (Brazilian eLearning Teacher training K-12) project started to be conceived.

BET K-12 aims at investigating three main issues:

- The issue of **access** to ICTs: this involves technical, economic, sociological and psychological factors influencing persons' opportunities to use the technologies;
- The issue of **quality**: the conditions under which it is possible to implement an effective and efficient eLearning program for primary teachers in disadvantaged Brazilian areas;
- The issue of **impact**: the readiness of Brazilian primary teachers to use eLearning in their training, and their adoption patterns.

BET-K12 started in October 2005 and lasts 36 months; during the project the 6 persons composing the Swiss and the Brazilian teams meet regularly online and onsite (online on a monthly base and onsite on a quarterly base) to accomplish project activities and to stay tuned on the research development.

The project is divided into two main phases: phase A aims at understanding the quality of eLearning environment and models in teacher training in Brazil, while phase B aims at studying the access and the impact issues in a specific case study: CEAP courses.

In the following paragraphs each phase will be connected with its research field.

**The issue of Quality** The first main objective of BET K-12 is to map different models of teacher training programs involving ICTs in Brazil and at understanding the quality of these programs; this is done in order to seek and suggest innovative eLearning models, which can allow effective and efficient learning practice.

In order to accomplish this objective the Swiss-Brazilian team has compiled a list with all the initiatives of pre-service and in-service teacher training using ICTs currently in place in Brazil. The second step consists in drawing, starting from previous researches and adapting existing models (Philipps & Merisotis 1999; Cantoni, Lepori & Succi 2003; Eppler & Mickeler 2003; Massy 2002; Reeves 1999) specific quality criteria for the given field; while the third step is the conceiving of a questionnaire which has to be submitted, quite likely via telephone and email, to the identified sample. BET-K12 team will then analyze it and will plan a more in depth interview session with key respondents of the sample.

A more specific study will be carried on for the Bahia State, where not only teacher training institutions using ICTs will be mapped, but all the initiatives of teacher training across the State. The institutions doing teacher training but not using ICTs will be asked why they chose not to use ICTs and if they intend to use eLearning in the future. In this way the team will be able also to map the entire teacher training world of the Bahia State and its attitude toward technologies.

**The issue of Access and Impact** The second objective of BET-K12 is to understand how primary school teachers, in a disadvantaged Brazilian area, react to their first eLearning experience, along three different dimensions:

- The impact on their way of teaching and learning;
- The impact on other fields of their life (snowball effect);
- The impact on the transmission of ICTs potentialities to their community.

In order to accomplish this phase, the research focuses on the case of the above-mentioned CEAP in-service curriculum.

The already existing collaboration between the involved institutions allows carrying on a longitudinal study. A questionnaire has been designed by the Swiss-Brazilian team in order to test the group on the following matters:

- its use and exposure to ICTs,
- its perception of the computer and the internet
- its perception of eLearning
- its learning behaviors, its teaching behaviors, and their role as change agents (Rogers 1995) (not including the first turn of questionnaire submission).

In this phase teachers enrolled in the CEAP curriculum will be asked to answer the questionnaire four times: first, at the beginning of their learning experience with ICTs during the ♦Computer Literacy♦ course; then, during the ♦ICTs in Educational Contexts♦ course; third, during the ♦Theory of Communication♦ course; finally, six months after the completion of the curriculum.

The following paragraph shows the main results of the first questionnaire delivered in June 2006.

### **TEACHERS' USE OF ICT IN BRAZILIAN COMMUNITY SCHOOLS: THE CASE OF CEAP COURSES**

The questionnaire, delivered at the beginning of July 2006, was divided in four main sections: 1) general information about the teachers (♦You♦); 2) the use of ICTs by teachers (♦You and the technologies♦); 3) technologies available in teachers' schools (♦Your school and the technologies♦); and 4) the (intended) use of ICTs and the

acceptance of some specific technologies for teaching purposes using the Technology Acceptance Model (TAM) (◆You and your teaching activity◆) (Venkatesh & Davis 2000).

This section presents the descriptive statistical results of the questionnaire; the TAM results are under analysis and will be presented in future papers.

## **You**

The group is composed of 44 teachers, 43 of them are women. This reflects the Brazilian culture, where the teaching profession is historically associated with the role of women as mothers and of schools as extensions of home. The average age of the group is about 37 years, 12 teachers are over 45; the large majority of the group started teaching before 30, only 8 of them after 35.

28 teachers of the group work only in one community school, 10 in two schools, 2 in 3 schools, 4 in more than 3; 10 teachers who teach in more than one school, teach also in non-community schools.

8 teachers (18%) declared that they earn less than the minimum wage (about RS 350, corresponding to USD 160); 15 earn the minimum wage, 21 more than the minimum (24%). Comparing this situation to that of 2004, when the group started the university study, data are encouraging: in 2004 34% of teachers earned less than the minimum wage, while those who earn more than 1 wage rose from 24% to 48%. These data confirm the hypothesis that the highest is teachers' education the highest is their income.

## **You and the technologies**

Teachers use the computer mostly at the university (75%) and at the CEAP (86%: actually, this figure should have been 100%, since all teachers used a computer at CEAP: it is likely that those who did not checked the CEAP did not consider the course they are attending as 'using a computer'); some of them use it in the schools where they teach (27%) or in a LAN house (27%), only a few at home (18%) or at friends' place (16%). Interestingly 34 teachers declared to use the computer once, twice or three times per week: this confirms that they use it mostly at the university or at the CEAP, where they attend their classes once per week. Similar figures emerge when considering their access to the internet.

25 teachers (57%) started using a computer in 2004, i.e. exactly when they started attending the university. Only 6 of them have been using it since 2000 or earlier.

Only 9 teachers have one computer at home, 7 of them have an internet connection.

It is worth noticing that teachers use the computer and the internet not only for professional reasons, but also for entertainment (e.g. for playing games, listening to music, downloading and watching movies, chatting, and so on); furthermore, 4 of them declared to have already used the internet to buy something.

As concerns other technological devices they have at home, all of them have a TV; also radio is very widespread (80%), as well as mobile phones (73%), DVD (70%) and CD (64%) players.

## **Your school and the technologies**

7 teachers said in their school there is no computer. In 8 of the 37 schools where there is at least one computer, this is not connected to the internet.

However, even if there is a computer in the school, this does not automatically mean that teachers can use it: as a matter of fact, only in 7 schools the computer is in a laboratory, in 1 case it is in the (future) library, whereas in 32 schools it is in the secretary/administration.

## **You and your teaching activity**

33 teachers declared they had already used a computer and/or the internet as a tool for preparing classes, mostly for searching information and writing texts. This figure is overturned when considering the use of computer and/or internet during classes: only 13 teachers already used it, for searching information (4), projecting slideshows (4), playing audio/music (4), navigating in the internet (1), projecting movies/animations (1), and typing exercises (1).

29 teachers have already used during classes other technologies: also in this case, the most widespread are TV (26), radio (25), DVD (22) and CD players (21).

In the last section of the questionnaire, teachers were asked some questions about specific technologies that have been introduced or were going to be introduced in the 'Computer Literacy Course'. They were asked whether they knew the technology, whether they already used it, and their perception about the easy of use, the usefulness and their intention of using it. Teachers were asked to declare how much they agreed/disagreed with some claims on a 5-point Likert scale.

In the following table we report for each technology, how many teachers already knew it and how many already used it:

<b>Technology</b>	<b>I know it</b>	<b>I have used it</b>
Text editors	43	41
Presentation editors	31	18
E-mail	30	25
Internet search engines	36	34
Wikis	3	2
Blogs	39	33
Forums	10	4
LMS	2	1
Chat	22	6

The high figure of teachers who already knew and used a blog could appear surprising: the reason is that a blog was used by the CEAP instructors in order to keep track of all the learning activities of their courses.

In the following table, for the 5 technologies that at least 30 teachers already knew, we report the results about their perception of the easy of use, the usefulness and the intention of using it in their professional activities:

Fig. 1: overview of the perceived easy of use, usefulness and intention to use

As it can be noticed, for all technologies the intention of using it is higher than the perception of its usefulness, which in its turn is higher than the perception of its easy of use.

## REFERENCES

- Cantoni, L. Lepori, B. & Succi, C. (2003) European Universities managing quality in eLearning, in Szücs, A., Wagner, E. & Tsolakidis, C. (eds), The Quality Dialogue. Integrating Quality Cultures in Flexible, Dis-tance and eLearning (Proceedings of the 2003 EDEN [European Distance Education Network] Annual Conference, Rhodes, 15-18 June 2003), 291-298
- Eppler, M.J. & Mickeler, F. (2003) ♦The Evaluation of New Media in Education: Key Questions of an E-Learning Measurement Strategy♦, in Cantoni, L. & Schulz, P. (eds), Studies in Communication Sciences, Special Issue New Media in Education, Lugano, March 2003

Massy, J. (2002) Quality and eLearning in Europe. Survey Report 2002, Bizmedia, Twyford, Reading (UK)

Philipps, R. & Merisotis, J. (1999) What`s the difference? A Review of Contemporary Research on the Effectiveness of Distance Learning in Higher Education, prepared by the Institute For Higher Education Policy (available online on the IHEP website)

Reeves, T. (1999) ♦A Research Agenda for Interactive Learning in the New Millennium♦ World Conference on Educational Multimedia, Hypermedia and Telecommunications 1999(1), 15-20

Rogers, E.M. (1995) Diffusion of Innovations, 4th edn, New York, NY: The Free Press

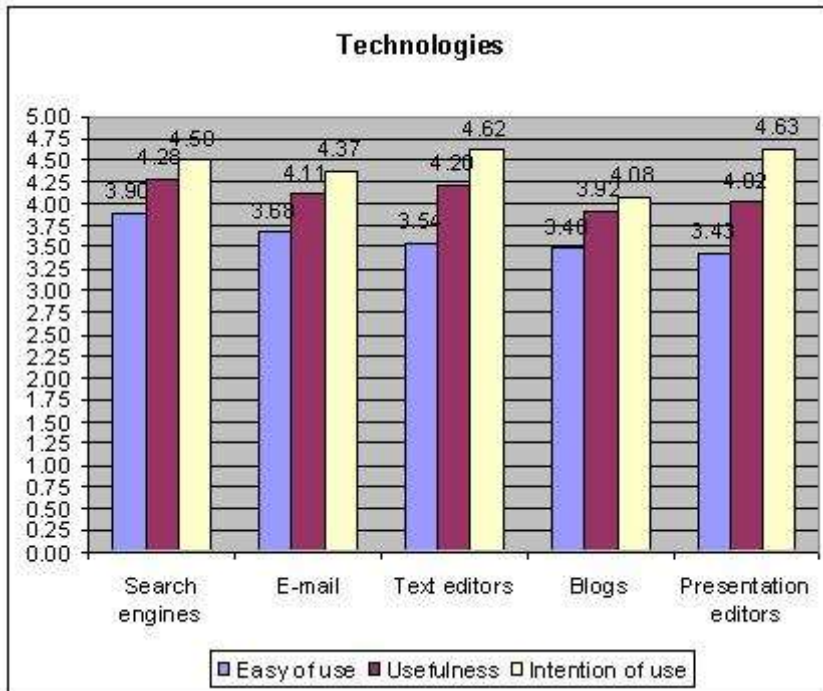
Venkatesh, V. & Davis, F.D. (2000) A theoretical Extension of the Technology Acceptance Model: Four Longitudinal Field Studies, in Management Science, 46 (2), p.186

The deadline has now been postponed.

Lan House is the name given to cybercafes in Salvador.

## Figures

Fig 1



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