

# Surfing Portuguese Primary Schools: Outcomes from a National Internet Programme in Primary Schools

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**Abstract:** This paper describes a Portuguese National Internet Programme and presents the assessment and results of its first year. IPPS (Internet Programme in Primary Schools) assures the installation of a multimedia computer and its connection to Internet in order to contribute to a higher equality and quality to accede information. Each school designs and implements its own web-page and in collaboration with all national primary schools develops and shares educational materials. At the present IPPS a national network that includes more than 11000 institutions.

## The Portuguese ICT Context

### National ICT Projects: The previous steps

The Portuguese Ministry of Education has been trying to introduce ICT within the educational system since 1984. The first attempt that is known as the Carmona Project was created by the Dispatch no 68/SEAM/84 and settled down the first formal reflection about the importance as well as the main goals about the introduction of ICT in schools. The emergence of the Minerva Project (Ministry Dispatch 206/ME/85, of October 31<sup>st</sup>) one year later put in practice the Carmona Project. The Minerva was the most well known specially for its relevance and importance. An international panel of evaluators of the O.C.D.E. (1994) published a report that emphasised its importance in the modernisation of schools and stimulated the increasing participation of schools, teachers and students through the relationship and exchange of knowledge among teachers of different education levels. After Minerva other projects were launched, e.g. the Project IVA (Informatics for Active Life) that was conceived to equip secondary schools, train teachers and teach students in IVA laboratories, the FORJA project that was part of FOCO (In-service Education for Teachers) and provided teacher training. FORJA was seen as the first important step in implementing a systematic structure for in-service training in the area of ICT. It was created by GEP and involved secondary schools from 1992 to 1994. The next project called Nónio Século XXI was created by a dispatch of the Ministry of Education dated October 4th, 1996 and is still in course. This project tries to recover all the experience of the previous projects and its main focus may be summarised: the improvement of the conditions in which school functions and the success of the teaching-learning process; the quality and modernisation of the educational system's administration; the development of the national market for the creation and edition of educational software for pedagogical, didactic and management purposes; the contribution of the educational system to the development of a more flexible and participated information society.

### Internet Programme in Primary Schools (IPPS): the basis

The Internet Programme in Primary Schools (IPPS) is a national initiative led by the Portuguese Ministry of Science and Technology (Ministry Council n.º 110/2000, August 22<sup>nd</sup>) within the framework of the «Green Paper for the Information Society» which may be considered one of the major responsible for the creation of IPPS. Some of the recommendations of the Green Paper may reflect the main concerns that IPPS may contribute to solve: make the exercise of fundamental rights easier, by offering direct access to information and new methods of social dialogue,

on a national, regional and local scale; improve the conditions for citizens' participation in decision making, opening up new dimensions to the freedom of speech and all the rights to democratic activity; give the authorities new instruments for direct communication with the people, increasing transparency and offering new services, and thus countering social and regional discrimination; important opportunities to participate in international affairs, especially in the Portuguese-speaking world. Another initiative that must be referred was the Law n.º 140/2001, of April 24<sup>th</sup>, that creates the Diploma of Basic Competencies in ICT. This Diploma aims that all the Portuguese citizen must know basic ICT skills that will be assessed by an examination that includes the following contents: Creation of a folder; Word processing (how to write, print and save documents); Internet (use a search engine; print information/data from web pages); Electronic mail (send, receive and print e-mails). The conjunction of all the governmental measures reinforced the importance of the IPPS.

### **Internet Programme in Primary Schools (IPPS): Main goals**

All 5<sup>th</sup> to 12<sup>th</sup> grade schools, as well as some 1st grade schools have been connected to the Internet as well as cultural associations and libraries that have also been connected. Within the framework of the IPPS all the schools have been equipped with a multimedia computer with a 64K ISDN connection to the Internet through the *National Science Technology and Society Network (RCTS)*. This connection involves no additional costs for the schools and most of them are supported by the Local Council Authorities. One of the main goals of IPPS is to stimulate schools to use Internet for educational purposes, supporting the production of scientific and technological content. Since this network includes universities and polytechnics and primary and secondary schools that allows and promotes communication between the scientific community and schools.

In order to ensure the schools connectivity, the National Scientific and Research Network - RCCN - was expanded in order to host additional traffic. Fifteen regional PoP - Point of Presence - were created within the largest Universities and Research Labs already connected to RCCN, to accept school ISDN dial-up connections and provide major Internet services as well as technical support. Within this technical infrastructure FCCN - Fundação para a Computação Científica Nacional - is responsible for the management of this infrastructure and the co-ordination of the PoP involved. The Educational support is done by the uARTE (*Educational Telematics Network Support Unit*), from the Ministry of Science and Technology supports and promotes telematics activities in schools. The uArte website offers various services that support the development of the IPPS: news sent in by schools describing their activities; a catalogue of interesting educational resources on the Internet; some *forums* (news or IRC) where schools may debate issues relating to education; an e-mail and www directory of all schools in the IPPS; several proposals of national and international projects based on Internet; some guiding materials and a showcase of good examples and best practice.

In the field different strategies were carried among the Universities and Polytechnics that are responsible for the training of tutors that give support in each primary school (all Portuguese primary school!) according to the different Portuguese districts. Part of the educational support is carried out at the local level, through several actions centered on school visits, facilitating the correction of problems, and stimulating the use of the Internet as a library information resource.

### **Internet Programme in Primary Schools (IPPS): A general overview and previous results**

The IPPS was a consequence of the Law n.º 140/2001, of April 24<sup>th</sup> (Diploma of Basic Competencies in ICT) and its formal implementation was in 2002 which means the school year of 2002/2003. During this school year 32000 visits in 8000 primary schools were made by 600 tutors coordinated by the 4 Universities and 14 Schools of Education. The first visits began in September and October 2002. As a result it is outlined three activities:

- Each primary school had its own webpage.
- 38500 diplomas of Basic Competencies were issued.
- Universities and Schools of Education developed resource centers to support the activities.

Table 1 summarises the total number of the results of the first school year 2002/2003:

The total number of primary schools	8 101
Work sections	31 768
Funding	4 000 000€
Teachers	25 897
Pupils	299 460
Coordinators	101
Teacher training sessions	703
Diplomas	38 503

Table 1: Results of the first school year 2002/2003

As a consequence of IPPS it is important to stress that the increase of webpages in primary schools change from 709 to 6 032. The most positive result of IPPS was the creation of webpages however for the next school year is to develop educational contents for those web pages in collaborative work involving different primary schools.

### **Internet Programme in Primary Schools (IPPS): The case of the School of Education of Castelo Branco**

The School of Education in Castelo Branco recruit 12 tutors selected from 38 candidates that had to be interviewed and demonstrated their ICT skills. The profile of those tutors included ICT skills (basic knowledge on Windows; word processor, Internet; e-mail) and another requirement was that they were teachers in order to apply ICT pedagogically in education.

A 120 hours training course was implemented in six different modules:

- Module 1(12 hours): The working and functions of operating systems - Windows (hardware and software installation; computer configuration; network; FTP; trouble shooting).
- Module 2 (16 hours): Internet (diachronic analysis and development; services; ethics; search engines; gathering and printing information/data; pedagogical suggestions including the use of Internet).
- Module 3 (6 hours): Electronic mail (creation of an e-mail account; receive, send, reply, Cc, Bcc; attachments; pedagogical including the use of e-mail).
- Module 4 (36 hours): FrontPage (design and implementation of a webpage; layout; frames; content development).
- Module 5 (36 hours): Design of a pedagogical prototype (application of the technical and skills; planning for further implementation within educational context; computer mediated communication; collaborative projects).
- Module 6 (14 hours): Theory and practice of the Primary curriculum (goals, contents and methodologies; analysis and critical reflection; planning of strategies and intervention in the classroom; practical use of Internet in the teaching and learning process).

Those modules were organised in three main areas: hardware and software (modules 1, 2, 3, and 4); pedagogical use of ICT (module 5); focus on the use of ICT in the Primary schools (module 6). The objective was to implement a training course that had to incorporate skills and knowledge with technical and pedagogical fields in order to enhance the potentialities of ICT. At the end all the tutors were assessed and evaluated. They presented a proposal of the use of ICT in the teaching and learning process combining technical and pedagogical skills.

The School of Education of Castelo Branco signed a protocol with FCCN (Fundação para a Computação Científica Nacional) in order to reach the following aims:

- Put in practice the pedagogical aims of the training course; monitoring the teachers of the primary schools; promoting pedagogical use of Internet.
- Create a webpage for each primary school.
- Certify basic ICT knowledge and skills.
- Promote seminars and training courses on ICT.

- Promote the building of learning communities.
- Create and maintain a virtual resource centre to support the teachers (<http://crat.ese.ipcb.pt>).

Besides the main aims previously mentioned the IPPS also aimed to promote all the conditions so that all pupils could obtain the Diploma of Basic Competencies in ICT. To reach those aims the tutors will make 4 visits (work days) in each primary school of the district of Castelo Branco. The activities will include an active participation from the pupils and teachers in order to produce, update and publish materials in the webpage; promote, support and certify the acquisition of ICT skills (mainly the pupils of the 4<sup>th</sup> schooling year); promote the creation of learning communities among primary schools, local authorities, sport and cultural associations and foreign countries that Portuguese is the official language. The monitors have the support from ICT techniques and from experts on ICT in Education as well as the collaboration of trainees from the School of Technology and Management of Castelo Branco. During the school year of 2003-2004 the number of members involved is:

- Total number of primary schools of the district of Castelo Branco: 218
- Total number of primary teachers involved: 569
- Total number of classrooms: 487
- Total number of pupils: 7282

According to the number of schools involved the budget only allows the possibility of doing 4/5 visits (work days) in each primary. The 1<sup>st</sup> visit aimed to clarify the primary teachers about the IPPS and the planning of intervention. Another aim was to get information about the ICT needs of those teachers (questionnaire). At this first visit each tutor worked with the class (pupils and teacher) by creating a folder, create and save a text, insert pictures and print files. More activities were done such the use of e-mail, educational software and the exploration of websites. At the 2<sup>nd</sup> visit there the focus was on the use of Internet. The pupils did practical activities by searching information/data according to the syllabus of the primary school and promoted a close contact with the Virtual Resource Centre of the School of Education of Castelo Branco (<http://crat.ese.ipcb.pt>). At the 3<sup>rd</sup> and 4<sup>th</sup> visits they searched and selected information/data from the Internet. Those information/data was saved and printed in order to spread it out within the learning community through collaborative work among the other primary schools. At last the pupils did an examination to get the Diploma of Basic Competencies in ICT.

### **Internet Programme in Primary Schools (IPPS): The first outcomes from Castelo Branco**

In what concerns the district of Castelo Branco all the primary schools have a website. Only few of them (5-8%) are not operational. The main concerns at this first stage besides to put the website online was to define which sections should be included. The internal organization of each website (template; ergonomic; sitemap) is different but it is possible identify some kind of similarities. Almost every websites show at the homepage a picture of the school or the school and the teacher and the pupils with music and with animation (e.g. toons). The subsections usually are:

- Our school (Picture of the school; description of the school (number of teachers, pupils, classrooms...))
- Who are we? (Picture of the teacher and pictures of the class and sometimes picture of each pupil).
- Our place (Pictures and descriptions about the place – village – where they live, number of inhabitants, local festivals, gastronomy, historical events, legends and sometimes with a map and a link to the website of the Local Administrative Authority).
- Our activities/work (activities done; compositions; illustrations; special days (Autumn; Spring...); visits...).
- Educational Project (presentation of the project of the school: aims; contents; products).
- Learning with ICT (a collection of websites most of them for entertainment and other of institutions).
- Questionnaire (Website evaluation).
- Address (phone; e-mail).

A content analysis of the primary schools webpage showed at this stage a concern to make public the institution itself (building, pupils and teachers) as well as a description (some a full description) of their region/village and some work done by the pupils (texts and paintings). In what concerns the use for educational purposes it was very difficult (except 3 or 4 primary schools) to observe an internal coherence, i.e. curricular sub-section according to the national syllabus: Portuguese language; Science; Mathematics; Expressions (musical, physical, plastic, drama). What is possible to observe is just a random publication of work done with no relationship with the syllabus.

Another weak aspect is related to the lack of connections and/or common projects among the schools as well as the use of Internet to enhance and/or complete information/data. Nevertheless those reflections must be seen as just a stage of the project which weakness will be solved according to the planning previously presented. Another positive aspect that may be emphasized is that a research project will be going to start evolving Mathematics and Science student teachers. This project aims to produce teaching materials by using the Internet as a resource as well as evolving other schools of Castelo Branco. This evolution should promote the creation of a virtual community on Mathematics and Science subjects. It is supposed to be an example that may be taken in account for the development of projects and actions on the other subjects.

The first battle was a success but we know that more battles will come. Nevertheless according to the positive impact and the enthusiastic evolution of all the actors of the educational field we are sure that we will win the digital challenge!!!

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