BRINGING ELEMENTARY SCHOOLS OF TRÁS-OS-MONTES E ALTO DOURO REGION TO THE NET\(^1\)

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ABSTRACT
The project Apoio às Escolas (AE) has for principal objective to give strong support to the elementary schools of Trás-os-Montes e Alto Douro (TMAD) region, in what concerns to the Internet’s use as a learning tool. During project’s first stage, we have adopted the visit—working session—visit method. By doing so, we have worked simultaneously with teachers and students at the school (we worked with 72 schools, and more than 276 teachers and 3000 students). The method described is unique in the TMAD region, and is being extended to other Portuguese regions. We fulfilled three groups of working sessions and noticed that in the schools where we have directly contacted the teachers the participation ratio was higher. The topics covered in these working sessions were: web navigation, web search, email, IRC, personal home pages construction, and videoconference. We also produced introductory support manuals and an Internet portal (Espiguinha—www.espigueiro.pt/espiguinha). In the project’s second stage, we still adopt the visit—working session—visit method. We are now working with more than 1200 schools from elementary schools to high schools, more than 1700 teachers from elementary school and more than 13000 students. Parallelly, we participate with Netmóvel unities in trade fairs, bookseller’s fairs, fun fairs, rock festivals, fashion events, etc.. With the help of the so far obtained results, we can conclude that a large number of teachers are motivated for the Internet use and apprenticeship. We may also see that the smaller the number of teachers by school the larger the ratio of assisting teachers to the working sessions. A web site to help teachers, students, and parents, with pedagogical strategies and activities is also described, from which we point out a group of dynamic on-line exercises. We think that this site may help increment Internet’s use as a learning tool.

KEYWORDS
Elementary school, Internet, learning tool, methods

1. GENERAL CONTEXT
The current project Apoio às Escolas (AE) has for principal objective to give strong support to the elementary schools of Trás-os-Montes e Alto Douro (TMAD) region, in what concerns to the Internet’s use as a learning tool. It is included in the Trás-os-Montes Digital — Serviço Cooperativo de Extensão em Trás-os-Montes e Alto Douro (SCETAD) project.

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During the project first stage (AEP), we connected the first 72 Elementary Schools of TMAD region. We worked with these schools, reaching 276 teachers, and approximately 3000 students. We have adopted the visit—working session—visit method. By doing so, we have worked simultaneously with teachers and students at the school. We have concluded that the first school’s visit had primordial importance, because it made possible a direct contact with the teachers. With this first contact we could break down some walls and provide teachers with the pros of Internet (in particular) and new technologies (in general) use as a learning tool. During this phase, once again, we gave privilege to the human and pedagogical contact, directly in schools. In this way the technology is viewed as a secondary or a complementary material or tool. Also, the teacher is seen as the principal actor in the scene.

We fulfilled three groups of working sessions, the third one with the Unidade de Apoio à Rede Telemática Educativa—uARTE collaboration. The topics covered in these working sessions were: web navigation, web search, email, IRC, personal home pages construction, and videoconference. We have also produced introductory support manuals [1, 2] and an Internet portal (Espiguinha — http://www.espigueiro.pt/espiguinha).

In the second stage (AE), we are working with approximately 1200 schools (from elementary school to high school), more than 1700 teachers (elementary school only), and more than 13000 students (elementary school only). In order to give response to this boom, we have adopted the use of the Netmóvel unities — basically, a van equipped with training personnel, 13 notebook computers, a printer, a digital camera, an ISDN router, an ISDN videoconference system, etcetera.

Parallely, we participate with Netmóvel unities in trade fairs, bookseller's fairs, fun fairs, rock festivals, fashion events, etcetera. In this kind of events we are working with the community in general, and with people aged from 4 years hold to 80 years hold.

The experience gained along this project in our region and other projects in other Portuguese regions (such as uARTE’s experience), motivated (along with other factors) the Portuguese government to replicate our visit–working session–visit method to all Portugal. As so, in 2002, contacts were established, by the previous Ministry of Science and Technology (MST), with 14 Escolas Superiores de Educação (Superior Schools of Education) institutions and 4 Universities, all of them related to Elementary Teachers Training, being UTAD one of these. These contacts led to the so-called project Acompanhamento da Utilização Educativa da Internet pelos Professores e Alunos das Escolas Públicas do 1º Ciclo do Ensino Básico (UEI) (Attendance of the Educational Use of Internet for the teachers and students of the Public Elementary Schools) that complements and enlarges the actions of Trás-os-Montes Digital project, but now only in Vila Real District.

We are developing a web site to help teachers, students, and parents, with pedagogical strategies and activities, from which we point out a group of dynamic on-line exercises. We think that this site may help increment Internet’s use as a learning tool. We hope that this web site becomes a place for teacher to interchange experiences, materials, and so on between each other.

2. METHOD DESCRIPTION

As noted before, in the first project stage, we have adopted the visit—working session—visit method. This method permits us to work with teachers and children simultaneously, directly in the classroom, which was a decisive factor in the high ratio of computer use. By doing so, the human and pedagogical contact is privileged, and the technology will be posted to a second plan. Also, the teacher will feel comfortable and supported. It very often happens that a teacher gives up Information and Communication Technology (ICT) during the first difficulties. This motivates the need for a human ability (our team) and a physical infrastructure (computers – Netmóvel).

As noted in [2] “The lonely student at a computer terminal or with a book has difficulties to keep his motivation and some times he gives up. To surround this difficulty and make the loneliness less noticeable, we use human meditation, all in electronic mail form, distant tutorial (...)”.

3 Authors Translation.
This means that if the teachers do not have the necessary knowledge cannot motivate nor help their students with the Internet or computer use. So in our strategy we firstly reach the teachers and then the students. According to Freinet [3] the deep changes necessary in education should be made by the teachers themselves.

Motivated by the fact that most of the teachers (near 100%) do not have in their curricula an ICT course, we are using introductory theoretical sessions and practical sessions. Our working sessions give emphasis to the link between the pedagogical and the technological needs. For example, we do not only explain how to use generically a browser, but how it can be used in a pedagogical way, giving practical samples.

We try to implement the “life long learning” [4] theory. That is, encourage the teachers to have the ability of self-learning. This can only be achieved in a some what long time, giving teachers time and space to practice what they have learned, according to John Dewey “learning by doing” theory [5].

This led us to state that the method implied is a hybrid method based on “life long learning” and “learning by doing” theories.

The followed activities were developed using a team organized by one coordinator, one vice-coordinator, three Netmóvel coordinators, twenty seven training people, three Netmóvel technicians, one web designer and two programmers.

2.1 School visits

The first visit was crucial because the personal contact allowed us to alert and stimulate the teachers for some of the advantages on Internet’s inclusion, in particular, and Information and Communications Technologies, in general, in the learning process. They served also to know the exact number of students and teachers per school.

In schools with more than four teachers it was impossible to contact all of them due to schedule incompatibilities. Note that almost all the teachers hosted us very well. During these visits was also raised the question of teachers mobility, i.e., a teacher mastering at school one year is not granted to stay at the same school next year—recall that the project extends from 2000 to 2003, which implies that the session’s number and schedule had to be reprogrammed. The teachers’ mobility problem was also solved—all the teachers that had begun the working sessions were allowed to finish the process (twenty-five hours working session).

During the AE phase (project’s second stage), and due to the variety of school situations, in some schools, we have done the first visit after the first working session.

The second visit served as a reinforcement of the first working session and a recount of teachers per school. We also alerted the teachers for necessary materials to the school’s web site construction—next working session. This visit’s aims are the same to the AE phase, but now teachers and students created and published the school’s web site.

The last school’s visit works as a briefing of all other visits and working sessions. This does not imply to leave the teacher alone in the ICT world; it should be made in a gradual way. To this end, we maintain a helpdesk contact by email and telephone. They always know where they can find us.

2.2 Working session

These working sessions are mainly practical. We only have an introductory theoretical part. We adopted the “learning by doing method”, because we think that teachers learn best by actively engaging in these new technologies tasks. We think that in this method, and this is primordial, there must be a certain time gap between the three working sessions. The time that goes between each working session, the next visit and the following working session is to assure that teachers have enough time to practice at school with students. As so we try to promote, once again, the “learning by doing” theory.

The first working session has for main aims to teach Internet, web browsing and web searching (with Microsoft Internet Explorer), email (with Microsoft Outlook Express) and Newsgroups. Due to the various difficulties presented by the teachers it was impossible to cover the Newsgroups. With the so far gained experience, we decided to remove Newsgroups activities.

For AEP phase, the second working session had for principal aims the consolidation of the subjects learned on the first one, and the teaching and planning on the web site construction. The web site full
development was impossible because the teachers were not technically prepared. This lack of preparation was essentially due to teachers’ general computing inexperience and not to Internet inexperience. (The web sites presently finished are available at Espiguinha—www.espigueiro.pt/espiguinha/escolasaderentes.html.)

For AE phase, and in what concerns to the second working session, we still have the same subjects, with the exception of a session on Internet Relay Chat (with Microsoft Chat) and a small ISDN videoconference (with Videomeeting TV) with the aim of stimulating teachers’ interaction. By doing so we promote the use of Information and Communication Technologies and ideas or plans that can be implemented by schools geographically away from each other.

The third working sessions have for principal aim the development of the schools’ web site. On this web site we let the teachers and students decide on what material to include. Normally they show their school, their village, their works, and their community, in a word, their culture.

2.3 Netmóvel sessions

The general public can use Netmóvel to awake a desire for Internet knowledge. We wanted to bring it up to TMAD region. The planning had been made with uARTE cooperation. From this cooperation two seminars resulted, devoted to “School Internet use”, one at Vila Real (52 teachers) and another at Chaves (27 teachers).

The following topics were discussed: the SCETAD-AEP project; the “Internet at schools” government program; various uARTE activities; and some projects and ideas for elementary school Internet use. To this last topic it was fundamental a videoconference with several experienced teachers. Also, several practical working sessions resulted. During these sessions IRC (Microsoft Chat) was introduced and web navigation, web search and email reviewed. At Vila Real, three sessions with 60 teachers were accomplished, and one session with 15 children and parents. At Chaves, four sessions with 85 teachers were accomplished, and one session with 90 children (the children were divided into 4 groups).

Other practical working sessions were accomplished without uARTE’s personal support. These sessions were carried out in the following places: Miranda do Douro (4 teachers), Sabrosa (12 teachers), Alijó (16 teachers), Lamego (12 teachers), Santa Marta de Penaguião (17 teachers), Torre de Moncorvo (7 teachers), Vila Nova de Foz Côa (1 teacher) and Macedo de Cavaleiros (4 teachers).

In the AE phase, all the working sessions in the TMAD region are being developed with Netmóvel support.

2.4 Method results

The results presented in this section are only relative to teachers’ working session adhesion. The high ratios or percentages observed can be due mostly to the fact that teachers have seen in our team a partner from which they can get help (technical and pedagogical support, among other things).

The so far obtained results are very good and apply to teacher’s working session adhesion. During AEP phase it was observed a global teacher’s adhesion of 72% from the grand total of 276 teachers to the first working sessions. This number raised up 80% during the second working session, and 79% in the third one. Note that in schools with less than four teachers this rate is higher: first session 95%; second session 83%; and third session 71%. This reduction could perhaps be associated to teachers’ mobility, and also to the fact that we could not contact all the teachers because they were no longer working at the same schools. Other possibilities can be related to pre-retire situation of some teachers, teachers’ detachment in Information and Communication Technologies, and other post-graduate courses. In schools where we contacted all the teachers the adhesion was almost 100%. The same applies to elementary mediitized schools.

For the AE phase the results are distributed as follows: first working session 74%; second working session 68%; and third working session 63%. As we can see, although the covered material remains almost the same, teachers still very interested and involved in the process. There are many teachers that still adhere the working sessions probably because they need a “partner” (or somebody to help). As we will see in the conclusions section, we are preparing a new set of working sessions with new contents.
3. OTHER SENSIBITISATION AND DYNAMIZATION SESSIONS

During phase two (AE), other practical working sessions were accomplished in high schools with the Netmóvel unities, avoiding students and teachers travelling. Several practical sessions were accomplished during the “Informatics week” at the S. Pedro (Vila Real) high school. The students’ sessions covered Web and email topics, and the teachers’ were general Internet sensitisation and dynamization sessions. The same topics were covered at Camilo Castelo Branco’s high school (Vila Real).

A Netmóvel unity was present in a large number of events in all of the adhering villages and cities of TMAD region. The entire TMAD region is covered by these events that are held mostly in summer. It is to note that we are invited to be presented at these events, i.e., these events are not organized by us. As it has been said, we participate in several booksellers’ fairs handicraft and product of the land fairs, reaching 13 852 people.

4. INTERNET PROJECT SAMPLES

In this section we briefly present a few projects or ideas that had been implemented by teachers with children that effectively use the Internet as a learning tool. One of them is related with Alto Douro Vinhateiro world’s heritage. The main aims are: to develop a permanent attitude of research, observation and students environment experimentation, to recognize the importance of Douro’s history importance, to create in children the consciousness of the need to preserve a world and natural heritage, to promote the direct contact between children living in Douro’s region towards their reality.

Other project is Viajante RuralNet (RuralNet Traveler). The main aims are: to know better student’s land increasing the value of their natural and cultural heritage, to confront student’s living style with other regions, promoting the contact with other social and cultural realities, to develop search ability and capacity, to narrate traveler lived experience.

We also promote the project Memórias de um Povo (Memories of a People). The main aims of this project are: to make known people’s modus vivendi: proverbs, habits, recipe and traditions of several present and past social groups, to promote children direct contact with their origins, to develop research, observation and experimentation attitude towards theirs present and past people.

Some activities that can be developed to these aims are: Internet search and browsing, records classification and organization, verification of different cultures between distinct epochs, register gathered information by using text processing and drawing, photography digitization, email opinions and information interchange with other schools, develop a web site or page. In the RuralNet Traveler case the students may also register traveler information inside and outside classroom of “traveler” and “mother” schools.

5. THE ESPIGUINHA PORTAL

Along first stage-first working session of this project, we noticed the need for something simple to help the teachers through Internet browsing, so we developed the Espiguinha portal—www.espigueiro.pt/espiguinha (in Portuguese). It offers basically a set of Internet links or pointers to sites or services of teachers, students and parents interests. With this aim a site is being developed, based on educative programs and a set of activities/ strategies that comply with Ministry of Education guiding lines. Some of these activities are integrated in Alto Douro Vinhateiro, Patrimônio Mundial project.

Teachers from the adhering elementary schools have chosen the Espiguinha portal as their “gateway” to the Word Wide Web, as can be concluded from Figure 2. As we may see, Saturday and Sunday are the days with least number of accesses. Note also that accesses distribution along a day is concentrated on the school normal functioning schedule. Starting 7 September 2000 the accesses number is increasing. Until January 2001 we registered 8600 accesses [4], until September 2001 – 23500 accesses [5], until September 2002 – 126000 accesses [6], until January 2003 – 163250, and May 2003 – 225407. Also, the holiday months are the ones with fewer accesses.
6. A SITE WITH STRATEGIES AND ACTIVITIES

With the help of the so far obtained experience, mostly due to Espiguinha portal, we are now developing a site consisting of educative programs and a set of activities/strategies that comply with Ministry of Education guiding lines.

The educative programs are being developed in order to be available for all the four years from Elementary Schools. The aim of these programs is to be a basis for teachers and students implement their activities. In order to implement these programs, exercises and other activities will be available in a dynamic form. These activities are not self contained in the site, i.e., they may contain and encourage visits to other sites or even practical experiences. Also, the teachers may upload their own programs, lessons or activities in order to share it with all the school community. In this way we emphasize the cooperative and collaborative method’s behavior.

We are also implementing a hybrid e-learning method. The helpdesk or “student” tutor is not online. The tutor visits directly the school. The tutor has a direct contact with the “student” in his/her school (or workplace).
7. RESULTS

The projects presented here are not exhaustively processed. Its principal aim is to show teachers interest and motivation in this field.

7.1 Project first stage

The results obtained so far are very satisfactory. The teachers are very much interested and participative. For the first working sessions a global 72% adhering teachers was observed. During the second working sessions this number raised up to 80%, and for the third ones 79%. Note that in schools with less than four teachers this rate is higher: first session 95%; second session 83%; and third session 71%. This decreasing could perhaps be associated to teachers’ mobility, and also to the fact that we could not contact all the teachers because they were no longer working at the same schools. Other possibilities can be related to pre-retire situation of some teachers, teachers’ detachment in Information and Communication Technologies, and other post-graduate courses. In schools where we contacted with all the teachers the adhesion was almost 100%. Note that the same applies to elementary mediatised schools. This high rate can be partially explained by the fact that these schools are geographically very isolated and the Internet (web, email and IRC) can be used to communicate. Also, the teachers from elementary mediatised schools are experienced with TV use, and teachers from special education are used to work with computers.

7.2 Project second stage

From the results obtained so far, we conclude that they are also very satisfactory. As mentioned before, we obtained an adhesion (in percentage) of 74% for the first working session; 68% for second working session; and 63% for the third working session (see section 2.4 for the comments on these results).

We have also fulfilled several practical working sessions, reaching 92 teachers and 1 135 students from High Schools. As already stated the number of sessions carried out at trade fairs, bookseller's fairs, fun fairs, rock festivals, fashion events, etcetera, reached 13 852 people.

8. CONCLUSIONS

From the results analysis we see that the applied method is good and that the first school visit is very important to the project’s good achievement. We also noted that whenever the teachers were directly contacted they were more cooperative and participative. This was confirmed for schools with less than four teachers where the teacher’s adhesion was almost 100%. A very high number of teachers are interested and motivated to Internet skill learning.

The continuous increasing number of accesses to Espiguinha, the satisfactory utilization of email, the interest and enthusiasm with material availability for Internet web sites construction, and some developed related projects, observed directly in schools, let us conclude that the project has succeed.

We would like to reinforce the idea that the projects briefly summarized at section 4 can and may be implemented in any country or any region, no matter sex, color, religion or culture.

In the near future we want to continue to help teachers with Internet use. Not only the ones from elementary schools but also from middle to high schools. Students and their parents are also included in our objectives. Last (but not least) we want to contact the greater possible number of general public with Netmóvel unities in trade fairs, bookseller's fairs, fun fairs, rock festivals, fashion events, etcetera.

Recall that the project’s aim is to help the teachers with Internet use as an educational resource.

The high teacher’s working session’s adhesion can be interpreted as a teacher need of technical/pedagogical (mainly technical) support to these, more or less, recent technologies Information and Communications Technology.
In the near future we want to continue to help teachers with Internet use. Not only the ones from elementary schools but also from middle to high schools. Students and their parents are also included in our objectives.

Also, the teachers are not prepared to correct or solve technical problems. So, we are now developing and approving a complementary course on some most common technical problems existing at Elementary Schools, and ways to correct them. This includes the topics: computational systems (12 hours); technical problems solving “trouble shouting” (6 hours); word processing (20 hours); image digitalization and processing (12 hours).

REFERENCES