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ABSTRACT

Virtual resources centers have been considered a pedagogical tool since the increasing development of electronic means allowed for the storage of huge amounts of information and its easy retrieval. Bearing in mind the need for enhancing the appearance of those centers, a discipline of "Management of Resources Centers" was included in a specialized diploma course run at the University of Minho (Portugal) for in-service primary teachers. As a final work for that course, one of the authors (A. Silva) developed a virtual resources center about Ponte de Lima, which can be easily accessed through the Web site that was created http://www.pontedelima.com. The center has not merely educational purposes; it also has in mind simple local information useful for tourism or to get native people who are living outside, in touch with their country. This paper describes the way the site was conceived and how its main areas developed. Some statements of users on how they benefited from this tool are also provided. (Contains 22 references.) (Author/AEF)

VIRTUAL RESOURCES CENTERS AND THEIR ROLE IN SMALL RURAL SCHOOLS

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Abstract

Virtual resources centers have been considered a pedagogical tool since the increasing development of electronic means allowed the storage of huge amounts of information and their easy retrieval. Bearing in mind the need for enhancing the appearance of those centers, a discipline of "Management of Resources Centers" was included in a specialized diploma course run at the University of Minho (Portugal) for in-service primary teachers. As a final work for that course, one of us (A. Silva) developed a virtual resources center about Ponte de Lima, which can be easily accessed through the Web site meanwhile created – (http://www.pontedelima.com). The center has not merely educational purposes; it also has in mind simple local information useful for tourism or even to get native people, living outside, in touch with their motherland. We describe the way the site was conceived and how its main areas developed; additionally, we present some statements of users, looking for understanding of how they benefited from this tool now at their service.

Introduction

Since the mid-sixties Portugal has adopted deliberately an educational policy where instructional technology played a significant role. Although at this time the country was ruled by the retrograde dictatorship of the Prime Minister Oliveira Salazar[9], some signs of openness regarding the education could be noticed, specially concerning the principle of extending the education opportunities.

Portugal is a mountainous country, particularly in the Northern part. There are hundreds of very small villages that stand sparse in the valleys and even in the mountains. At this time, the road network was a very bad one. One of the wiser decisions of Oliveira Salazar was to build small elementary schools (grades 1-4) throughout the country, even in the smallest places. However, while the first four years of schooling were assured, the subsequent years were not, because of the distance to a major center and the extreme poverty of the people living in distant villages, who could not pay additional housing expenses. This was the main reason why most students did not take further courses at the secondary schools.

In 1965 the Government decided to set up the IMAVE (*Instituto de Meios Áudio-Visuais de Ensino* – Institute of Audio-Visual Means for Teaching) and also the *Telescola* (TV school). The *Telescola* started running courses by television to provide students in rural schools two more years (5-6) of schooling, that is to say, extending from four to six the number of school years. The design of *Telescola*, as well as its implementation, was a very good one. Besides the short lessons by television in each school an elementary teacher acted as a monitor, adding some direct teaching to the televised one. As is said in an OECD evaluative report, showing high regard for the Portuguese innovation,

> [i]t was altogether unexpected that out of Portugal should have emerged the only well established example in Europe of an integrated learning system, in which television played a central instructional role, covering the full curriculum at 'first-cycle secondary' level, and dealing with tens of thousands of children (OECD, 1977, p. 2).

[9] Oliveira Salazar was the Prime Minister of Portugal between 1928 and 1968, and ruled the country as a dictator. His successor, Marcelo Caetano (1968-1974), though more moderate, followed the main lines of Salazar's policy and was overthrown by the 25th April 1974 Revolution (the Revolution of Carnations).

The *Telescola* certainly was the most evident exploit in instructional technology in Portugal. At its peak tens of thousand students followed yearly its courses. Still today the *Telescola* continues to serve some villages where it is difficult to implement post-elementary schools. Of course Portugal is not today as it was in the 1960's. On the one hand, most small villages lost young population and today there are no children to go to school: some hundreds of primary schools closed. On the other hand, road conditions improved a great deal, and the isolation was broken for a majority of places.

However, it is still difficult to teachers living in small villages to cope with the lack of information and pedagogical materials they need in their everyday life. Teachers recurrently complain about their situation; they want and they deserve to have much more support. Several strategies have been thought of to minimize the poor conditions teachers face in the rural world. Once more technology seems to be the best way to reach such a goal: the Internet may help those teachers, due to the establishment of virtual resources centers.

What the Literature Says

Resource centers are not a novelty: even in the older schools, some educational materials were kept, having in mind their re-utilization by teachers and students to improve the learning process. In the beginning, however, school libraries stood as the main documentation centers. As the audio-visual materials developed, school libraries became true school media centers, keeping together books and other script materials with films, slides, audio and videocassettes.

In 1972, the American Association of School Librarians (AASL) acknowledged the shifting times, deciding to change the name of the AASL journal, *School Libraries*, to *School Media Quarterly*. In a rejoicing article, "A title for the times", Srygley reports us that "[f]or more than twenty years AASL has given strong leadership in defining the school library as a media center, learning resources center, or instructional materials center" (1972, p. 16). Therefore, we can assume that almost thirty years ago the label "resource center" came to the everyday life of schools.

The development of computer technology determined that even the professionals who were reluctant to admit a "library" keeping materials other than books and journals, should change their minds. In 1983, Koskiala summed up the new librarian point of view: "Nonprint is beginning to be given serious consideration in some accredited programs" (1983, p. 309).

The role of media specialists is going to change, and fast: in an examination of the impact of the new information age on education, Considine told us the sincere statement of one administrator, saying that "media specialists were an endangered species, threatened with extinction because they were neither visible nor viable" (1985, p. 182). He added: "For media specialists to survive such a threat, they must change not only their role but the perception many teachers and administrators have of that role" (1985, p. 182). Later, Schiffman (1987) wrote about the "window of opportunity" open to the school library media centers, entering in the online environment, to change public education.

Other authors (e.g., Craver, 1986; Dede, 1985; Ely, Blair, Lichvar, Tyksinski, & Martinez, 1996) drew readers' attention to the effects of the computer explosion, affecting schools and libraries (or media centers). It is notorious that these fifteen years (1985-2000) brought more changes to technology than those that occurred in the past 85 years!

All this means that the conditions to move forward were created. If powerful networking is available, if the storage and retrieval of information becomes easy for anyone, if communicating instantaneously with any part of the world is possible, then, why not have virtual resource centers?

In the 1980s the challenge of new information technologies (NIT) stimulated many contributions that made clear that the future of libraries (or learning centers) depended on the way these institutions were able to deal with those technologies. A new concept of literacy is implicit: besides reading and writing, the knowledge of using the computer is indispensable (Breivik, 1985; Horton, 1983; Hubbard, 1987).

However, it is only in the 1990s that the idea of a "virtual library" (and "virtual resource center") solidifies. Books and journal articles were published throughout the decade clarifying concepts, discussing principles and proposing models (Butler, 1991; Butterworth, 1992; Kurzweil, 1993; Rooks, 1993; Saunders, 1993; Blake, 1994). Most were cautious, announcing the potential of the new format but lowering the expectancy levels. Some of them decided to act as futurologists and we do not know whether they were right or wrong.

The Situation in Portugal

The first great impact of NIT into the Portuguese school system dates from the mid-eighties, when the Ministry of Education launched a specific program called MINERVA[10]. The objectives were "to develop teaching about computers and learning with computers, with adequate teacher training" (OECD, 1986, p. 22). It had a modest start, considering the budget and the number of schools involved (about 50 secondary schools), but its developments were much more promising. When the project ended, in 1992, 1,172 schools of different levels of education had participated in MINERVA, more than 50,000 teachers had attended in-service training and more than 100,000 students had attended classes or workshops regularly (Ehrmann, Somekh, Withers & Grandbastien, 1994).

In addition, the teachers who were participants as monitors kept from the project a great élan, and most of them completed university degrees in the field and continue, in their schools or elsewhere, to disseminate what they have learned.

The University of Minho had been one of the centers where MINERVA had grown up. Among the teaching staff from the education field but also from the computer science field there existed a strong feeling about the need for developing continuously the pedagogical approaches to NIT use. Therefore, nobody was surprised when, in the late eighties and the beginning of the nineties, the University of Minho set up several post-graduate courses on educational technology, first at master level, then as specialization for elementary teachers.

At this time, elementary teachers were certified after a three year course (corresponding to a bachelor's degree). The post-graduate course consisted of two years of study (thirty five credits). The students who performed well in a final exam, which consisted of the defense of a mini-dissertation, got the degree of "licenciado", a degree that is popular in Europe but does not exist in the United States.

Those courses were restructured in 1997, and since then the NIT course (now denominated "Information Management and Educational Communication") offers a discipline of "Management of Resource Centers". This discipline aims to provide students with the appropriate knowledge and skills to deal with school media centers. As the proponent of the inclusion of the discipline in the curriculum, one of us (C. Freitas) assumed its teaching. His background situation analysis can be synthesized as follows.

In Portugal, elementary schools (the students enrolled in the course were elementary teachers, as it has already been said) are very diverse in their formats: a few are big ones, mainly in important towns, as Lisbon or Oporto, a few are very tiny, as happens in rural regions (some schools have just two or three students!), and most of them are middle sized. By and large, first because of the immigration (mainly in the 1960s and 1970s), then because of the decreasing rate of births in the country, a strong diminution of students in schools became a reality. Because of that situation, new legislation was enforced regarding schools administration. Small schools were invited to reorganize themselves to find partnerships, building groups of schools ("agrupamentos"), that is, schools joined under the same administration in spite their physical distance, which normally is not a substantial one.

Each school has its own equipment and educational materials; most schools have small libraries. The new administration logic challenges the way equipment, and learning resources, have to be used. It is not surprising that the idea to join up the different schools made very clear the need for a new way to make more effective the existing resources: therefore, little by little, some resource centers have been created.

It was decided to introduce in the discipline some discussion about the role the Internet plays in the dissemination of information and the emergence of true virtual resource centers. One of us (A. Silva), even before the course he was taking, was developing a web site about his mother land, the beautiful and historical Ponte de Lima[11], a town about 30 kilometers distant from Braga. He decided to make some arrangements to transform his site into a virtual resource center to serve educational purposes, although it aims also to reach tourists and other people interested in the historical town.

[10] MINERVA stands for Meios INformáticos no Ensino: Racionalização, Valorização, Actualização (Means of INformatics in Education: Rationalization, Valorisation, Actualization).

[11] Ponte de Lima means "The River Lima Bridge". The town still has a very extensive Roman bridge, which is one of the most beautiful in the country.

The Virtual Resources Center of Ponte de Lima

A. Silva, in his final report (1999), evoked Negroponte. Negroponte several times drew our attention to the effect Internet could play in disseminating information (v.g., 1995, 2000). The development of his idea comes first from the passion for computers and the Internet.

The WWW allows teachers and students to create their own resources and learning environments. However, much more important than the act of creation itself is the potential of such documents to become available to many other people – mainly other teachers and students – but virtually to any human being who uses the Internet. The information generated through the Internet is always accessible, sometimes much more easy to retrieve than in a library, as happens on consulting an encyclopedia or a dictionary on line or downloading pictures and texts.

As it was said, Ponte de Lima is an old town (population: c. 2500). It is the chief-town of the "concelho" (the Portuguese word that stands for county, although the dimensions of most "concelhos" are undersized in comparison to the U.S. counties). The "concelho" has 51 "freguesias" (Portuguese word meaning a small village), with a total of 44,000 inhabitants (Figure 1). Almost all "freguesias" have an elementary school and some of them have two; the number of elementary schools is 61. Ponte de Lima and three other villages possess post-elementary and secondary schools. Ponte de Lima also has agricultural schools, one at the secondary level and other belonging to the polytechnic network (higher education). There is at Ponte de Lima a private extension of a University, the Fernando Pessoa[12] University.

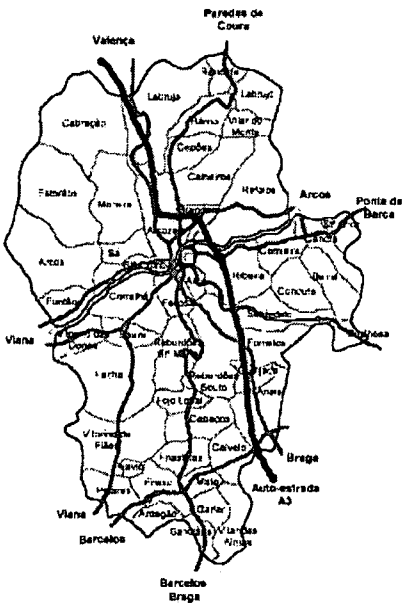

Figure 1 – Map of the "concelho" de Ponte de Lima

The number of students enrolled (1998-1999 data) is approximately 8,000; the number of teachers is 567. The dispersion of elementary schools isolates teachers in their schools. Sometimes, they have difficulty in find the materials they need for their classes. Although each school has a minimum of resources, it is impossible to provide each school with everything it needs. A virtual resource center could help those teachers and their students very much.

Since 1998, following a deliberation from the national government, all Portuguese schools have been equipped with the latest generation of computers and on RDIS line. The first schools to be equipped were the secondary ones; all the elementary schools will have computers by the end of 2001. This does not mean that many elementary schools do not have computers today; many local authorities

[12] Fernando Pessoa was the most representative Portuguese poet from the century XX.

anticipated the government deliberation and supplied some of the schools under their jurisdiction with machines.

This case, the concretization of a virtual resources center to assist those schools made sense. The design of the center, however, also contemplated other kind of concerns A. Silva had in mind: as a local native, he could not forget his fellow-citizens working abroad or people interested in learning more about Ponte de Lima. Consequently the design of the Web site reflected the several publics expected to visit it: teachers, students, emigrants, and tourists.

The visit to the Center shows seven basic themes:

- Access,
- History,
- Villages,
- Folklore,
- Nature,
- Utilities, and
- Pictures.

They are accessed through a navigation bar (Figure 2).

Figure 2 – Navigation bar

Each theme is divided into sub-themes. The theme History, for example, has the following sub-divisions:

- The origins of Ponte de Lima,
- The river "Lethes" myth;
- Characterization of the river;
- The bi-weekly market;
- The "Feiras Novas" (Portuguese words: New markets);
- The "Vaca das Cordas" (Portuguese words: the cow of ropes)[13];
- Monuments.

Every one of these sub-themes has plentiful documents, written texts, pictures, and songs. Obviously they have links to other themes, according to the logic of the construction.

We can find in this center such varied items as regional recipes, a complete statistical picture of all "freguesias" or the timetable for buses and how to call a cab. The quality of the images is very good, and some images picture dramatic events of the town's life (Figure 3).

With these documents, teachers can easily pick out those most relevant to their lessons. The site has the address http://www.pontedelima.com, or just http://pontedelima.com.

However, as some schools did not have Internet access, 200 CD are going to be distributed to all schools of the county, making possible the utilization of the Center by teachers without Internet. Bearing in mind the interest of potential tourists, there are envisaged English and French versions of the site. The problem, for the moment, is finding the appropriate financial support.

As a final requirement for the award of the diploma, the jury who appreciated this work congratulated the author. The Center has been constantly improved since then. It began as dependent on a large site; today it is emancipated, a "*dot com*" site.

On the other hand, the feedback coming from schools and teachers is very stimulating. One teacher who acted as monitor in a workshop, told us:

> The fact that we now have the site www.pontedelima.com was a very important event to Ponte de Lima ... it is a very pertinent tool, actually very useful for teachers and students ... it opens new perspectives, because it allows the utilization in the classroom, the teacher having all information needed about Ponte de Lima ... [Personally], during a workshop about "Introduction to the Internet", I found this site was one of the most used, due to the format,

[13] It is a kind of bull-fight; a cow, not a bull, runs through the crowd secured by some ropes.

structure and variety of effects the Author was able to put in it. It is a good example of quality . . .

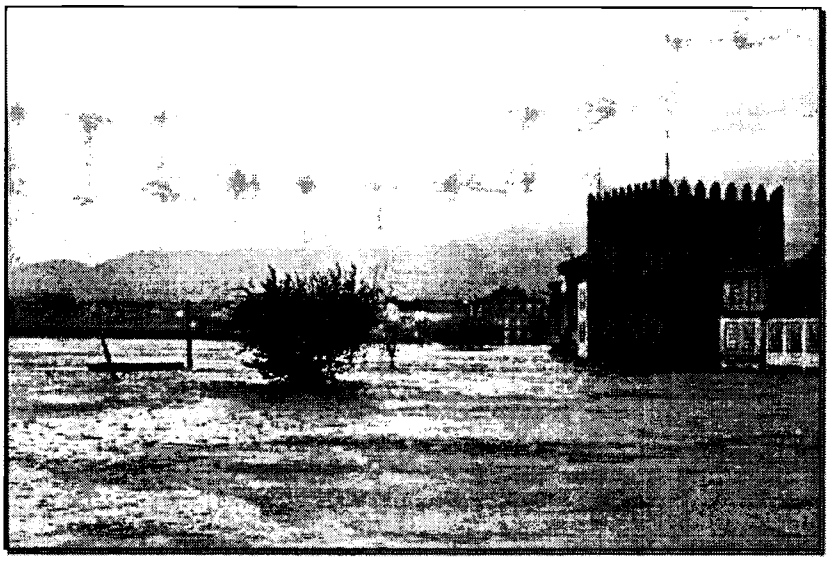

Figure 3 – A flood – the river Lima reaches the town's houses.

A member of the teaching staff of the Fernando Pessoa University sent a short message:

> Congratulations on the Virtual Resources Center of Ponte de Lima. Thank you for the significant help you gave us for building our prospectus for foreign students.

From another point of view, A. Silva received several e-mails from abroad: the United States (Massachusetts), Canada, United Kingdom, France, Italy, Brazil, and Spain, among others. The Internet is doing its job, linking people in the world. One of those messages came from Poitiers, France:

> I am a French student (from a Portuguese family) ... and I am preparing a comparative study of Portuguese traditional tales and traditional tales from the region where I live, Poitou-Charentes ... Would you tell me if there are anthologies of tales from Ponte de Lima and its environment? ...

Therefore, the virtual resource center is working even outside the region where it was created.

Conclusion

It seems clear that virtual resource centers have a place in our school system, even though "real" resource centers exist. Consulting encyclopedias, dictionaries and databases around the world, visiting museums and exploring endless opportunities is something that can do much more for children than simple books and traditional lessons.

This experience, which we are trying to monitor better next year, when there will be computers in all classrooms, challenges teachers and students: we think that the time has come to jump from the timid use of new technologies as auxiliary of the teaching-learning process to the creation of stimulating, imaginative and supportive technological environments for both teachers and learners. Virtual resource centers could be one of the tools to work out such a challenge.

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