THE DEVELOPMENT OF AN E-LEARNING SYSTEM TO SUPPORT A FOREIGN LANGUAGE COURSE

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Abstract

This article describes the development of a learning management system and its application in the support of teaching a foreign language. The system was shaped from the studies of others e-learning systems and from the needs of the teachers in the course, with the aim of automatize the teaching/learning process through the control of learners, teachers, theories and applied activities.

Keywords: LMS, e-learning, on-line teaching, distance education.

1. Introduction

The e-learning worldwide market has aroused the interest of several companies prepared to develop technologies or to offer varied services. From the available technologies, the most relevant are the learning management system.

The LMS software controls the development, management and attendance of on-line courses. The majority of LMS available in the market store information in a database, making possible to access the course available on-line. Besides, this system allows new students enrollment, collects and stores data about their situation and manages them in the course (ANDRADE, 2004).

A typical example of the LMS system is the Learnloop. Its first version was developed by Victoria Institute, Council for it in education, Gothenburg Business School, Gothenburgh University, in Sweden. The main advantages of this system are: the friendly and intuitive interface with the user and the open permission to use, that is, the source code is open to adaptations and it's not

necessary to pay to use it. Nowadays, it was been used in many education institutions in the world.

In Brazil, there are several initiatives to develop LMS systems. The universities are the institutions that invest strongly in this area, with the main purpose of creating distance learning course and supporting presential education. As an example of Brazilian Systems we can refer the AulaNet, created by PUC-Rio and the Eureka, created at the same university, but in Parana. Some other projects were also developed in partnership with universities and private investment. Thus, the LMS have been intensively used in higher education, extension and personal improvement course.

The motivation to development the system was the difficult to find and available LMS in the market that allows the teacher to:
- let contents and correspondent exercises easily available;
- get the answers and make the proper corrections;
- let students access the contents and answer the exercises in an only interface, without any other application further on the navigator.

2. System Development

With the target of orienting the conception and development of the LMS a programmer was adopted to the structured advancement of systems aiming quality and productivity (OLIVEIRA, 1997). This methodology was divided in the following stages:
1) analysis of the system;
2) project of the system, data base and website;
3) implementations;
4) tests;
5) corrections

2.1 Analysis of the system

With the target of understanding better how properly the LMS should work, we research into what the e-learning systems are and into the use of the Internet education.

Rosenberg (2002) defined the e-learning as: "[…] the utilization of technologies of the Internet to offer a wide sit of solutions that improve knowledge and performance" based on three criteria:
a) transmit information thought the net which facilities updating, storage, recovery, distribution and instantaneous sharing of information;
b) supply teaching to the final user exploiting the standard technology of the Internet;
c) concentrate on a broad concept of leaning: solutions of learning that go beyond traditional paradigms of training.

Concerning didactics on the net, it's possible to observe that the more interaction between student and teacher, the bigger its use will be, consequently demanding stronger knowledge of both. When a course offered on-line is just for information, there will be only file exchange through the net. As the level of complexity of the course increases, the level of interaction of the

student related to the technology will also go up. The use of e-mail, list of discussions, forum, chats, among others, used in a cooperative way, will enlarge the immersion level, being up to the software give support to the whole interactivity that is intended (FILATO, 2003).

With the expansion of the Internet, the improvement on quality of transmission of data let the courses happen partially or totally distant (GIUSTA, FRANCO, 2003).

Aiming at the improvement of the teaching learning process with the use of TIC, the Language Lab offered a course to develop the ability of writing in the English Language in a non-conventional way that is, using distance learning.

The first course used the LMS Learnloop but the available options through this system were too complex to the teaching of foreign language because its structure wasn't intuitive and easy for teachers and students.

The main difficulty was related to the teacher and in how he would manage the contents and post the corrected exercises. Another difficulty was the lack of a tool, which provided gap-filling exercises.

In the Learnloop, the student posted his file with the text previously typed letting the teacher see what had been produced. The teacher, in turn, correcting the items, needed to download the document in his own computer and open this file in an application, which allowed the reading and alteration. Finally, so that the student could access corrections, the teacher had to post the corrected file in the Learnloop again. These processes, were done many times, are too complicated for users who know very little about the subject.

Interviewing the teachers and the students it was shown the need of a system, which allowed the teacher to create activities, and that the student had the opportunity to read the content and answer the exercises in a length of time previously determined. Both the content and the exercises had to be totally available on-line without the need of transferring files through the net. Then, it was perceived the need of three user groups to the system: the managers, the teachers and the students.

In order to help the learning/teaching process, there is the requirement of separating the content that will be available to the student in theory and exercises.

Here, the theory shows concepts about aspects of writing ability and has the aim of supporting the student. The theory should be available in the HTML format. Therefore, the student reads the theory only after the specified date.

The exercises have the purpose of evaluating what the student had learned from the available theory. That's why the system should allow the teacher to insert exercises with gap filling. So, the exercise is available to the student to solve it in a given time determined by the teacher. After the time is up, it is not possible to write any longer and only read it.

When the student has answered the exercise and the time for doing that is over the teacher can, then correct it. However, so that the student is allowed to check the original text, his answer and what the teacher had corrected, the system should keep records of these processes.

2.2 The project of the system, data base and Website

The system allows that only registered users have access to it. Only the users defined as "administrator" or "teacher" will have access to the administrative area of the site.

When a user defined as teacher accesses the system, the data is filtered showing only the information of his group. On the other hand, when the user is the administrator, all the information will be presented.
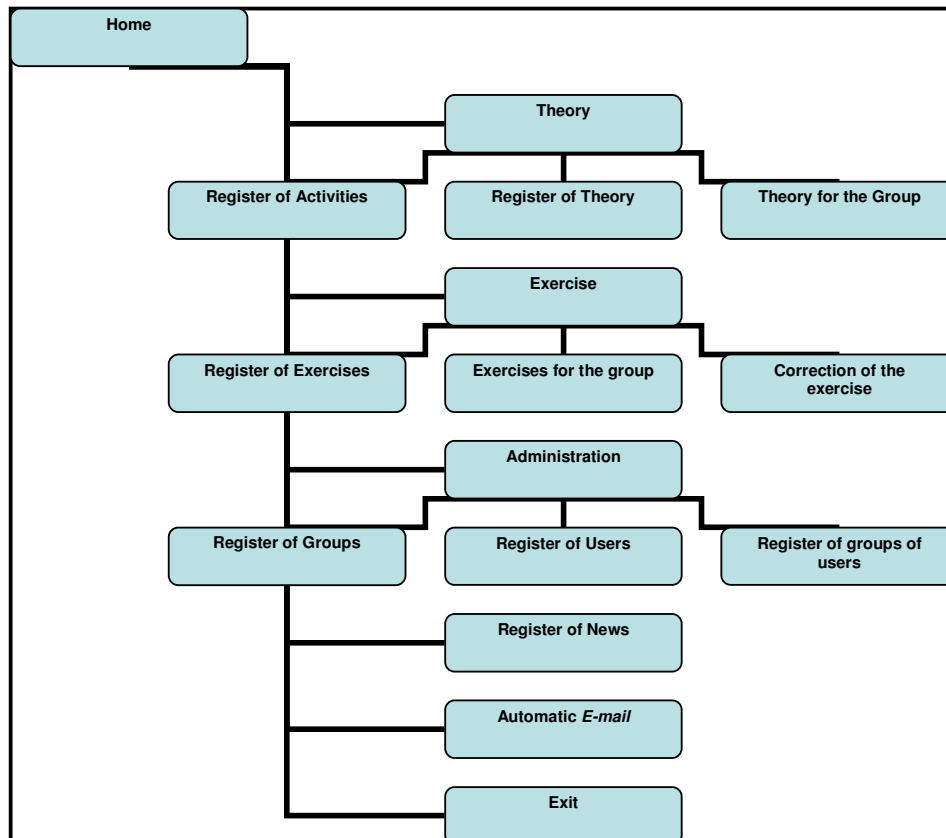

Figure 1 – Plan for the Administrative area of the site

Related to the student, the system leads him to a specific area where the contents are shown since the exercise is in time according to the schedule to visualize them.

The users registered as administrator or professor are the only one who have access to the administrative area where all the maintenance of the system takes place, the enrollment of students, creation of groups, creation of theories, exercises, corrections among others (Figure 1).

2.3 Implementation

To authorize the creation of contents and exercises inside the system, it was used an HTML (Htmlarea) editor. Which permits the resource WYSIWIG, that is an open source. This editor built in JavaScript can be inserted in any

HTML page and has the purpose of changing the typed text in HTML commands. With this editor, it is possible to format the text and create pages dynamically.

To store the information, it was used the data base MySql simultaneously with the PHP programming language to enable the dynamism of the system together with the web server.

The MySql is a fast and handy database and it has a perfect integration with the programming language to the Web PHP. The PHP is extremely easy to use, multiplatform, has open license, allows easy communication between user and data base, has a lot of documents and discussion list on the internet, among other characteristics that change it in a good option as tool to the programming of Websites. The association of PHP and JavaScript consent the creation of fast, more functional and dynamic pages. (CONVERSE, 2003)

The interface design was based on information of how the teachers understood and worked the learning/teaching process with the students.

2.4 Tests

In order to achieve the sketched goals, it was necessary to carry out several tests that made the final version of the project possible. After testing the functionality of the system, loading and operation tests were carried out in a group of eight students from different ages and jobs, interested in doing the distance learning written English course. The course was divided in seventeen weeks. Every week the student had to read a determined theory and answer the exercises related to them.

Therefore, the teacher, weekly, monitored the students and their learning, doing the correction of exercises and answering questions.

Among the interested students, four began the course effectively and only two ended.

Related to the HtmlArea editor, there were several problems. This editor has two versions available in the market: the version 2.03 is only obtainable to the Internet Explorer 5.0 navigation or higher. The version 3.0 rc1 besides the navigator mentioned before, can be used in the Mozilla 1.3 or higher. The version 2.03 works perfectly, but it operates in only one navigator and it does not have the underlining function. On the other hand, in the version 3.0 rc1 this option is complemented, but the slowness in processing long texts and the constant breaks of the navigator made it to be used only when the user is not navigating on the Internet Explorer.

2.5 Corrections

In the beginning of the project all the exercises were attainable to the student inside the HTML editor as an example, it was like if it was given to the student a text file and he had to write only in the spaces previously arranged. The only difference is that everything was done on-line.

This way, the teacher formulated the exercise and it was approved that when there was a yellow table, it was the place that the student had to write. It was perceived that this proposal, firstly, solved the problem. However, the student could make mistakes, deliberately or not, and it would damage his

performance. The student could erase all the text or change the statements easily. So, forms were used and the student could insert the answers only in the special gaps. With this changing, the understanding of the student related to the available exercise was clearer and possible problems were eliminated.

2.6 The use of the system

The administrator has access to every information of the system since maintenance of theory and exercise to e-mailing students who did not answer the exercises (figure 2). The icons bar is in every page, allowing the user to navigate through whatever page in an easy and fast way.

The student has a more simplified interface where, basically in a simple page, the theory and the exercises that will be answered are shown (figure 3).
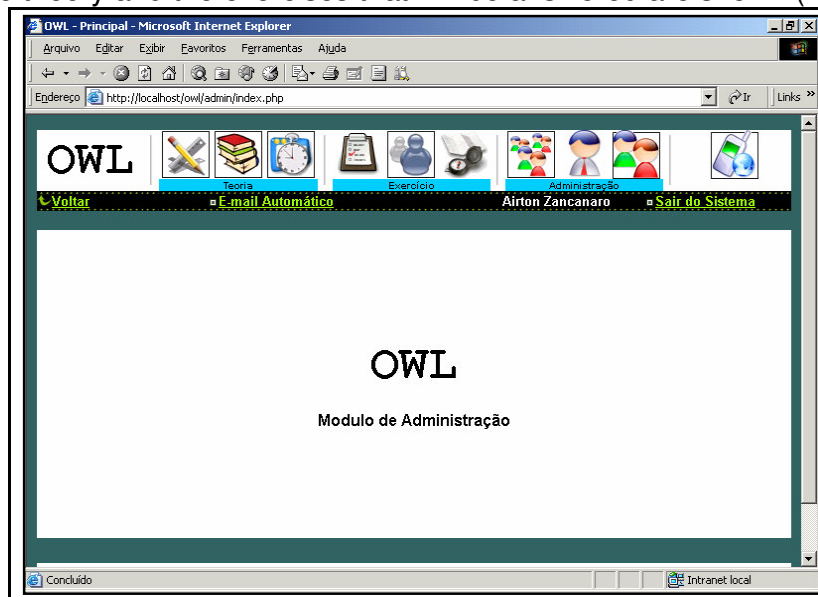

Figure 2 - Site of the administration of the system

Figure 3 – Student Page

3. Evaluation of the process

The tests accomplished by teachers and students were fundamentally important to adjust the system to the pedagogical needs. As an example the difficulty reported by the teacher in correcting the exercises, because the HTML editor doesn't allow to underline the wrong word and to select a color to write in the text, the system to be corrected to fit the educational requirements better.

Informally, students and teacher evaluated the system in a positive way because both had original experiences. It's described, first, a student's opinion:

> I liked the course very much, I didn't attend a couple of classes due to lack of time, I also would like to go on with this kind of course, I missed a present teacher in the beginning but later I was used to this new way of learning. Thank you for the opportunity (student).

It's important to perceive that there was a re-education of the student to this new method of learning. Second, it's described the teacher's statement:

> The experience to organize the OWL course was extremely enriched from the point of view of planning and structuring, mainly because its pioneering as an extracurricular English Course. Combining distance learning and direct contact with production of texts and grammar comprehension of the language structures were fundamental to the best of students' performance. Without a doubt, the students started and ended the course showing a large improvement in comprehension and functioning of the language through the use of this learning tool. This improvement was seen in class and in their production. The only problem, common to e-learning courses, it's the lack of commitment of some students regarding the activities what makes a better evaluation of contents and of student's development a little complicated (teacher).

The teacher in turn shows as positive points the better management of the course through planning and structuring and students grammatically more

competent. On the other hand, the lack of commitment of some students makes a coherent evaluation and development of contents more difficult.

4. Conclusion

During the period of studies to implement the system, it could be seen that there are several e-learning systems with open license, available to be copied. That's why many teaching institutions prefer adapting their systems, answering their own needs or achieving their own goals, letting the cost of development reduced. On the other hand, systems appear every day offering new learning/teaching tools consequently, all investment in training and installation done previously by institutions can be spoiled by a possible change.

The PHP is a language of easy implementation and offers many resources, which allows the easy and fast construction of several functions in the LMS. The connection of PHP and JavaScript integrated to HTML permitted the creation of more dynamic and functional pages and a better performance. However it can't be ignored the difficulty in using three programming languages that is an integrated way should form what the user sees in this navigator.

Although the LMS shown doesn't have resources such as: chat, collaborative texts and others; the system has been answering the needs of teachers and students enrolled in the on-line writing English course and have been continuously updated.

This leads us to understand that the best solution in LMS is the one that fits the way teachers and students develop teaching and learning. When the system inserts a lot of changes the trend is resisting to use for the fact that the user does not have previous knowledge on how to work the new solution (NIELSEN, 2000).

5. References

ANDRADE, Mário Vasconcelos; BRASILEIRO, Francisco Vilar. **Sistemas de Gerenciamento de Aprendizagem: uma metodologia de avaliação**. Available on: http://fad.uta.cl/dfad/docum/cedm/2-br-E1rio20Vasconcelos20Andrade.pdf Access on: 04 de outubro de 2004.

CONVERSE, Tim; PARK, Joyce. **PHP: a Bíblia**. Rio De Janeiro : Campus, 2003. xxxi, 868p.

FILATRO, Andrea. **Design Instrucional Contextualizado: educação e tecnologia.** São Paulo: Editora Senac – São Paulo, 2004. 214p.

GIUSTA, Agnela da Silva; FRANCO, Iara Melo. **Educação a distância**: uma articulação entre a teoria e a prática. Belo Horizonte: Editora PUC-MG, 2003. 246p.

OLIVEIRA, Jayr Figueiredo de. **Metodologia parra desenvolvimento de projetos de Sistemas: Guia Básico de referência.** São Paulo: Érica, 1997. 87p.

NIELSEN, Jakob. **Projetando websites**. Rio De Janeiro : Campus, 2000. xiii, 416p, il. Tradução de: Designing Web Usability.

ROSENBERG, Marc J. **E-learning**. Sao Paulo: Pearson Education, 2002. 320p.