Online Learning Support

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The Center for Advanced Studies, Research and Development in Sardinia, among its several branches, has a Department which focuses on the research and development of telematic tools for e-learning. Our Department is currently developing an Educational Help Desk that will be piloted at the Vocational Secondary School “Meucci” and should be launched before the end of this Academic Year. This learning support basically provides an online environment conducive to educational continuity, provided that the basic conditions for a successful learning process are met: indeed, online support by the teacher and a review of the topics presented in the classroom are two essential requirements for an effective educational support tool. The aim is to enable teachers to provide methodological tools in a time frame that is useful to students. This will be achieved through the setting up and piloting of online learning support stations throughout the network of schools.

Introduction

Those students who are not ‘present’ in the classroom – in every sense of the word – should receive educational support through an online access point. Whether because they are physically absent from school, or because they are deficient in attention and involvement, students may find it impossible to follow a structured path leading to the achievement of one or several learning objectives. A question we should ask ourselves is: “Which elements of classroom learning are students missing, and should not be missing?”. In order to effectively support students who are lagging behind, and enable them to catch up, we need to make an accurate diagnosis, so as to identify those elements they have not grasped which are essential for their understanding and achievement of a learning objective. In particular, we need to implement the following two actions:

- Explicitly illustrate the planned learning path (or paths): a learning pathway is made up of units or steps arranged in a sequence according to sound teaching rationale selected by the teacher.
- Enable the student to visualize this learning framework. This makes it possible to explicitly define the reference context and increase the chances of identifying the key links between different elements.

This map of the educational syllabus for each school subject should be placed online on the learning support platform. This mapping could include, for instance, the conceptual framework of the subject matter, the links between concepts and the questions that the teacher asks in the classroom to steer learners as they explore topics and build meaning by linking together the various elements of a lesson. Indeed, we are convinced that the mere online publishing of instructional materials discussed or used in the classroom would not be sufficient; the help desk should rather focus on illustrating the underlying structure of each syllabus, as designed by teachers who implement effective teaching strategies.

Elements of method

Teachers’ rationale

This includes the reasons why teachers decide to help learners/pupils achieve a target knowledge or skill level. A common complaint is lack of motivation among students. This can certainly be a major hurdle in the development of a logical sequence of learning steps. However, we should also ask ourselves why some students, while not seeming to lack interest or attention, still encounter difficulties in learning. One of the major reasons for this difficulty, aside from cases of permanent or temporary cognitive limits, is indeed the fact that more often than not, students are not given an explicit description of the rationale and learning objectives for a course. In fact, on the one hand the teacher typically has his instructional objectives clearly in mind, and has planned his
teaching steps accordingly. The route to be followed is implicitly mapped in his mind, the mind of an expert who knows how to steer and navigate through the elements of his subject matter. But, on the other hand, the obstacle for his students lies precisely in the fact that this underlying structure remains inexplicit, thus preventing them from grasping the overall picture of the proposed learning pathway. While receiving items of information, learners cannot visualize their links to an overarching structure. In this regard, the teacher’s motivation remains implicit and unexpressed. On the contrary, one of the paramount items we need to include in an online educational platform is exactly the learning context in which we wish students to orient themselves, i.e. the nature of the various learning steps and the rationale linking each step to the others.

**Timeline**

Due to organizational constraints, teachers are duty bound to follow a strict teaching schedule. If they skip a few or several lessons or do not pay attention in the classroom, students can thus easily miss one or more steps in the teaching process. This also creates gaps in their understanding of the links between the various units, that is of how the content of one or more teaching steps fits in with the general course objectives established by their teacher. In order to overcome this obstacle, it may be useful to associate each step or unit with a calendar, in order to highlight the logical continuity which underlies the progress from one step to the next. In this manner, the online service becomes an alternative and/or a useful adjunct to the guidance provided by the teacher during instructional hours in the classroom.

**Figure 1: Retrieval of content from the CMS**
Media support to the reference context

Even when the teacher has decided to explicitly illustrate the overarching structure of his syllabus, i.e.: teaching units, overall course rationale and learning objectives and the methods for achieving them, in most cases he/she only does so orally. When presenting course objectives and methods in the classroom, the teacher typically conveys this information by speech, and students generally take scant notes, if any. Thus, even the loss of just a “piece” or two of the general structure increases the likelihood of barriers hampering the student’s learning process. By recording the course framework in digital format and enabling its access we can add an important tool to the online support platform. A number of actions can be implemented in the system we are developing, each providing specific and mutually complementary functions. The choice of functions to be implemented in the help desk of individual schools reflects the priorities chosen, which may range from a focus on the provision of information to the objective of providing a catch-up tool in order for students to “recover missing pieces”. For the purposes of this paper, we shall focus on learning support.

Technical features of the system
The Content Management System we are implementing is dedicated to e-Learning. This means it focuses on distance access to and retrieval of educational contents aimed at remedial work, geared to the requirements of State schools. The system will be accessible from the various schools belonging to a service network. The software developed will be installed on a server (web Apache 1.3.24 or higher) equipped with PHP module (4.3.3 or higher) and DBMS MySQL (version 4.0.15 or higher). The software needed is embedded in the EasyPHP suite and can be installed on computers running either Linux or Windows OP (any version). The software needed is available as freeware. Access to, use and configuration of the CMS will be enabled by a Web Browser, and its use will not require installation of any kind of software on the client PC. The main functions offered are:

- Different user registration categories
- A two-way communication system, linking teachers with students and teachers with parents
- A module for managing educational actions.

Figure 2: Teacher’s private area
The module that handles the various user categories will initially add to the system all users who autonomously register into the CMS as guest users. Subsequently, guest users may be granted different user status and access options by ‘administrators’. User categories are as follows: ‘Administrators’ are entitled to view and change any content within the CMS. ‘Teachers’ have access to all educational contents within the CMS, can create lessons and exercises, join in chat rooms and create private chat rooms, view their students’ access record, write and read messages both on the forums and the bulletin boards available, use the messenger system available on the platform and view the information published in the CMS. ‘Students’ can view all educational contents within the CMS, take part in chat rooms and create their own private chat rooms, write and read messages both on the forums and on available bulletin boards, use the messenger system available on the platform and view the information published in the CMS. ‘Parents’ can take part in chat rooms and create their own private chat rooms, write and read messages both on the forums and on available bulletin boards, use the messenger system available on the platform and view the information contents published in the CMS. Finally, ‘Guests’ can take part in chat rooms, write and read messages both on the forums and on available bulletin boards and view the information contents published in the CMS.

The communication system will be divided into two sections

The first is a synchronous section, based on a chat system. The chat will be divided into channels (or chat rooms) that may be public or private (access to private chat rooms is subject to invitation by the chat room administrator). A number of public chat rooms will be permanently activated on the CMS. Moreover, teachers will be entitled to create private chat rooms and, as chat room administrators, they will decide who to invite to join in the discussion, from among the users registered in the CMS.

The asynchronous section will be based on an internal messenger system for the CMS, similar to a normal e-mail box. Indeed, all registered users will be able to send and receive messages from other registered users. Moreover, they will be able to participate in discussions in the forum (which can also be divided by subject matter) or read and write messages on the bulletin board (also with different sections).

The lesson management module will be created by developing a simple interface enabling teachers to publish teaching files on the CMS. Teachers will also dynamically create links between different pages to implement their remedial and/or information units. Links between the various units will make up a single remedial session. Pages can be generated within the CMS through the typical interface currently available on the most widely used word processors on the market. Alternatively, teachers may build their pages using an already existing website or by publishing on the CMS a file they have in their PC. This will enable those teachers that have considerable IT experience to use materials they have already produced without having to reinvent the wheel.

Piloting

The system will be piloted from February to June 2005 at the schools belonging to the network coordinated by the ‘Meucci’ Institute. A training module will be provided to those teachers who volunteer to participate in the pilot project with their students. The first part of the training course will focus on developing the know-how for mapping the educational process into a framework consisting of reference nodes to be included in the help desk for each school subject. In the second half of the training module, teachers will familiarize themselves with the platform and its various functions associated to the different types of educational project, the relationship between each project, the final users (students or parents) and topic and finally the possibility of integrating already existing or purpose-made materials in the CMS. During the pilot action, CRS4 will also support users (teachers and students alike) with both face-to-face sessions and online assistance, helping them implement remedial activities. We will provide a guidebook and perform ongoing monitoring in order to tackle any problems encountered by users – for instance, lack of confidence in using the platform might prevent participants from voicing any difficulties they might be experiencing. Another critical point we made clear from the early project planning phase was that the system should not be conceived as an ordinary answering tool, providing ready-made answers to students’ queries. Indeed, we were determined to avoid the trap of turning the help desk into a banal CMS for providing quick solutions to students grappling with their schoolwork or homework. Participating teachers will receive questionnaires for initial and final monitoring of each student using the help desk. The aim of this monitoring activity is to qualitatively assess possible changes in behavior and comprehension (or in tackling a problem) for each student who accesses the help desk a minimum number of times during the pilot action over a period of five months. The pilot action will also assist the school in setting up
an ethical board tasked with monitoring and ‘correcting’ undesirable behavior in the discussion forums. Monitoring and analysis of actions will also help us identify best practices to be preferred in each communication mode and those that should be discarded. Result assessment will enable the school to review and improve its practices, while the applied research team will be able to fine-tune educational offer and produce system upgrades for the benefit of subsequent help desk users.

**Outlook**

The territory of Sardinia is marked by its island status and low population density, with a number of villages with less than 1500 inhabitants. As a consequence, many schoolchildren have to travel quite a distance to reach their schools, and are under a strict time schedule. This means that many of them cannot easily attend their school outside the mandatory instructional hours or contact their teachers after scheduled lessons. Given this situation, access to the educational help desk can be especially beneficial. This first project for experimenting the online support platform in the Sardinian territory paves the way for an approach to educational support/catching up activities in a geographic and social environment which has so far been largely affected by scarcity of public transport services, lack of educational assistance for short/long-term hospitalized schoolchildren and a host of other situations, including lack of attention and concentration, which all contribute heavily to unsatisfactory school performance. At the end of the pilot project, results will be disseminated in a series of presentation seminars and through the publication of a final report.

**References**