

# A Web Based Open Distance Learning Tool for tutors of special social groups

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## KEYWORDS

Open Distance Learning, Web and Database technologies, Special Groups

## ABSTRACT

This work presents an integrated information system to support Open Distance Learning activities for tutors of special social groups. All applications and services are implemented based on Internet Technologies that allow the asynchronous cooperation between users, flexible and secure data management, offering advanced communication facilities. We propose an ODL tool that will be able to support tutors and professionals working at different institutions and organizations, especially those unable to attend long term training courses. The system includes a Database where all relevant data about organizations in Greece offering vocational and lifelong training programs can be found and individuals professionally involved in such activities as trainers. The user can attend asynchronous lessons (with video or sound), communicate with the responsible tutor and at the same time consult a library, the glossary or fill in a evaluation report.

## INTRODUCTION

Social exclusion attracts a lot of attention through out Europe. Public and private organizations have developed a wide range of activities ranging from confronting racism up to vocational rehabilitation. A major activity in this field is provision of training courses to individuals facing social exclusion or already socially excluded. Although a wide range of programs tackling social exclusion are designed and implemented raising public and social awareness. Up today, especially in Greece, there has been no systematic approach of offering training programs for adult education trainers.

As a result, trainers have not been able to develop methods of communicating and supporting team spirit and usually adopt school type of teaching (a one way relation between teachers and students, a strictly defined course not relative to the specific reality and problems and the need for survival). This results to negligence,

passive participation and denial to attend the course by the trainees. It is necessary to organize a systematic and specialized approach for offering training, on cognitive subject and pedagogical methods, in order to obtain a number of specialized trainers in the field of adult education of special groups (Bos et.al. 1996).

Our work presents on Open Distance Learning Tool (based on Web and Databases Technologies) to provide continuous support and advise of trainers working at different organizations and especially to trainers not able of attending long range seminars (McGreal 1998, Wolf 1995, Katchoff and Ryon 1997).

The operations of the ODL tool of PLATON (INTEGRA/EMPLOYMENT) include:

- The design and implmentation of a database containing all organizations, training centers and data about trainers and managers that relate to lifelong learning and vocational training and especially the active in the field of special social groups.
- ODL activities to support training of trainers. The courses available in the system may include images and voice and the trainee has the ability to communicate with the trainer (administrator of the system) through e-mail or follow-up messages, to use a structured library and a glossary .
- A mechanism to support the evaluation of the system and the available services and a mechanism for student evaluation.

This work is organized as following: the next chapter presents a general description of the project PLATON the third chapter presents the architecture of the system. The forth chapter focuses on the functionality of the system and at the last chapter we present some conclusions and future work.

## DESCRIPTION OF THE PROJECT

Resect studies have shown that social exclusion is a serious social problem which relates to the low level of education, illiteracy and the lack or scorn of professional

know-how of a substantial part of the general population. A number of organizations develop and implement training programs to combat social exclusion of special groups as refugees, lingual minorities, undereducated etc.

The main objectives of the project where:

- The development of ODL tool to support distribution of training material. The training material was developed especially for the purposes of the project and addresses the need of providing trainers methods and knowledge of how to deal with adults from special social groups.
- The registration and analysis of all data concerning organizations activated in the field of life-long training. This registration will lead to the development of a relative database.
- Exploitation and dissemination.
- Training of trainers in the issues of special social groups.

The PLATON system offers a set of supportive functionalities and advanced services (URL: <http://erevos.ceid.upatras.gr/platon>). These functions are categorized as visitor level which include all functionalities to be used by all independent Internet users and user level which include all services and functionalities to be used by authorized users of the ODL tool.

In figure 1 the left side of the figure represents the functionalities of the user and at the right the functionalities of the visitor. At the visitor's area the functionalities (services) available (from up to down) are: i) access to the ODL tool available for training trainers, ii) registration procedure to the ODL tool, iii) bulletin board - announcements, iv) administration v) help. On the left side we present the relevant services for the user of the ODL tool are: i) exchange of messages ii) bulletin board iii) library iv) Glossary v) evaluation form for the lessons vi) Training centers DB.

The supporting system of the network applications mentioned before is based on the provided services and functionality of World Wide Web (WWW). A WWW server has been developed which provides the central node of communication, processing and reference, speaking for the two applications.

The Training centers DB offers the user the capability of querying the database for a specific material based on different fields. An authentication mechanism ensures that no unauthorized personnel can use this application.

## SYSTEM ARCHITECTURE

The design and implementation of PLATON was based on user requirements from the trainees. These results and

the experience we had from developing analogous information systems lead to the following functional specifications (Minoli 1996):

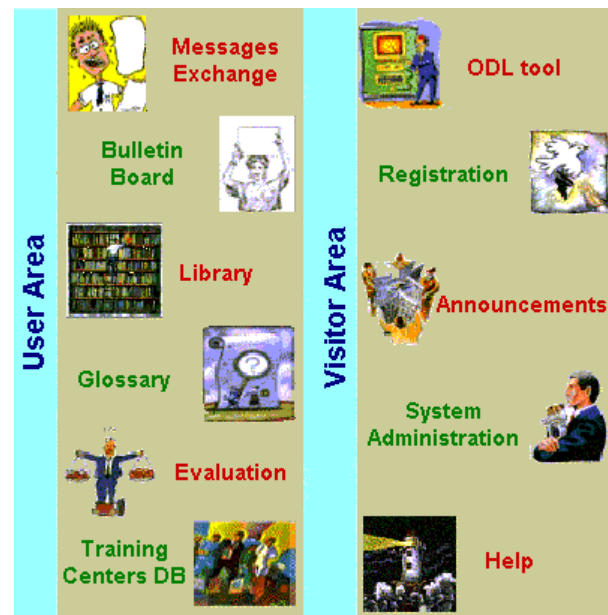


Figure 1: The levels in the PLATON system

- A check mechanism for all users' accesses should inform the user (citizen) for a successful or unsuccessful attempt when he/she tries to use the ODL services.
- A Data Base Management System (DBMS) interacts with the Web Server to provide the whole system with an efficient way of manipulation.
- A friendly and easy-to-use user interface is supported by the use of classical browsers, widely spread nowadays.
- A special electronic help page assists the user at technical issues (how to send via e-mail his personal data to register in the system) or at educational issues (how to use the library).

Additionally, there are some non-functional requirements that should be met in order to ensure the quality of the system, like safety and security issues and ease of use.

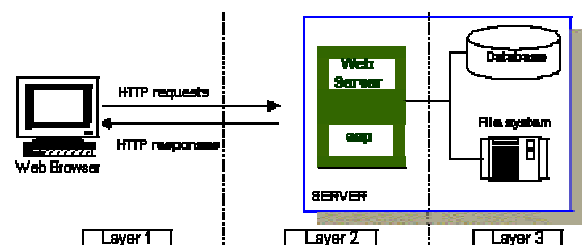


Figure 2: The three tiered Architecture

In designing the system architecture we used a three tiered approach (fig.2). At the first layer there is the browser through whom the user gains access to the system. At the second layer there is the World Wide Web Server, which operates as an interface between the two other layers. In detail, the World Wide Web through ASP scripts provides the user interface, designating the data that will appear in the browser, as well as the connection with real data that are stored in the database and the file system.

At last, at the third layer there is the file system of the server, where all the available electronic material is stored (messages, follow-up messages, lessons etc) and the database Server, where the entire information relative with the above material is stored.

## **SYSTEM IMPLEMENTATION**

For the exchange of several information provided by the system the HyperText Transfer Protocol is used (HTTP). The majority of requirements for html pages are coming up at the request time (on-the-fly). HTML is a markup language that consists of tags appearing inside the main html page.

The browser reads the page, interprets these tags and forms the page for the final appearance to the user. The working team tried to minimize the cases that the decisions for the final appearance are taken by the browser.

So, each time the user sends his information requests and takes the appropriate responses through HTTP protocol. As the contents of the various information are changing, the HTML page must be generated by the second layer each time the user makes a request. In this way, for the development of information systems it is important to write small sections of code to perform essential operations (web scripting). The second layer is responsible for the execution of such code sections, which consists of the Web Server. For the development of PLATON integrated information system Microsoft Internet Information Server 4.0 for Windows 4.0 was used, as it provides the ability for easy and effective creation of dynamic World Wide Web pages (Zimmerman S. and T. Evans, 1994).

The reasons, for which the writing of small code pieces is important, are summarized in the following three points. Firstly, this fact allows the web application to access the database, as HTML and HTTP neither can straightforwardly have this permission nor encapsulate the necessary information requested each time by the final user. Also, the web server scripting provides the usage of templates for HTML page creation at the request moment (on-the-fly). Page content can come up from anywhere, the database, text files, searches requests, computations and is dynamically introduced in

the page before pages is been sent (by the system) to the user. This technique allows information administration and control with the best way and does not require the HTML pages storage, which pages must be manually changed each time data is changed.

The Active Server Pages (ASP) technology allows the usage of programs executed at the World Wide Web environment and especially at the MS-IIS 4.0. ASP pages are files that contain HTML tags, text and script command. Furthermore, ASP pages can call ActiveX components for the execution of operations as connection with database or several computations are.

ASP pages are responsible for information administration stored (the information) in the system database. For ASP pages, ActiveX Data Objects (ADO) provide the connection with the database, through OLE DB and ODBC.

## **SYSTEM FUNCTIONALITY**

The services of the integrated information system PLATON can be separated in two categories. In the services that are available to a simple visitor of the web site and the services that are provided to certified users.

There is also the system administration service of the teletraining. System administrator is responsible for updating the system database with data about organizations that offer educational services to special social groups and the registration data of all students, users of the system. System administrator also supervises the system operation and usage by keeping and studying statistic data and forces users which penalties in cases of inappropriate usage of system resources by the users.

The authorized user is involved exclusively with the ODL courses, the teletraining material and an effective search utility, in order to retrieve information for organizations (training facilities), teachers and supporters participating in a project relative with special social groups (Bouras 1999a).

In both application categories, before each selection of service there is an introducing electronic help page that briefly explains what each applications does, in order the guest or the certified user to be informed for the available operations. The services available to a visitor are:

### **Open Distance Learning Tool**

This service is triggered only after a proper username and password is provided to the system (Bouras 1999b) and then the available services are presented (fig.3).

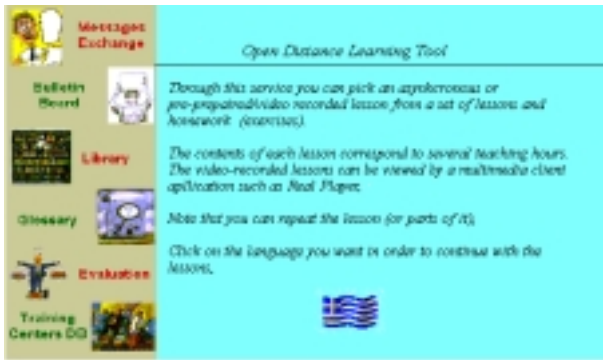


Figure 3: The ODL tool environment (user area)

Through this service, the user can watch an off-line or prepared audio-video lesson. A list of the available lessons is presented to the user as soon as he enters the environment after choosing the specific language. The lessons are structured in chapters and the user has the ability to navigate through the text. At the end of each chapter a set of exercises is presented for the trainee to study. The material presented at the PLATON site is original and was developed to facilitate the projects needs. The text and exercises can contain audio – video material and the user can watch this material through a multimedia client program, for instance Real Player. It must be noted that the user can repeat the lessons as more times as he wishes without necessarily to follow the teacher's rate. In this way the system provides a smart and effective watching of the lesson, that results in better comprehension of the information material.

#### *Messages exchange*

The message board is a tool with which authenticated users can read and send messages. All messages are text formatted, as the form of pure text was considered to be the most appropriate for collaboration, by the working team. Of course, the message board is an off-line way of cooperation among system users (Tsoi and Rahman 1996).

Each message added to message board includes the name, the date, the subject and the main body of the message. System user can watch all the messages added up to the time he uses the service, send new messages, send follow-up messages, send follow-up messages to follow-ups etc.

#### *Bulleting Board*

This service is like the “Announcements” service at the level of the simple guest user. The difference is that now the material hosted concerns exclusively the lessons and the exercises provided by the teletraining system.

#### *Library*

Using this service, the user has the following three choices: User can download the text of the lessons provided to his personal computer in order to study more comfortably a lesson some other preferable time (lesson's text). Each lesson, is accompanied by a relative bibliography. The user can find additional training material searching the net or visiting relative links. The links are periodically updated and responsible for this operation is the system administrator with the help of the editor of the training material.

#### *Glossary*

Trainees can refer to a electronic glossary in order refine the meaning of special terms, found in the text of a lesson. These terms have been appropriately selected and constitute priceless help to the students.

#### *Evaluation*

The user after has studied a lesson can complete a questionnaire relative with the lesson he attended. This service is an integrated application of lesson's evaluation and is necessary for system improvement. There is also a mechanism collecting statistical data during a user is in the system and keeping track of all user's “moving” in the system. This kind of “user's watching” shows the administrator the usage of system resources by each user visited the system and in turn helps to form a general evaluation for all the training material and training procedure.

The data from both of the above actions are stored in the system database in order to be processed and the final results to come up. Finally, the user can print the completed questionnaire so as to monitor his progress.

#### *Training Center DB*

Through this service the system user can search to find information about training organizations whose activities concern special social groups. Furthermore, the system user can find information about trainers and supporters working for these organizations. Users can query the database to find information based on a number of criteria. The system returns all the records corresponded to the user's criteria and are stored in the system database.

Additionally, there is the ability of point-and-click operations to gain more detailed information on the search results. For instance, the user can click on the name of a “returned” teacher if he wants to see the teacher's curriculum vitae.

## Registration request

For a simple visitor to access the ODL tool, he must submit a registration form to the system administrator, providing the following identity information: First name, Last name, Working address, City, Telephone number, Fax number (not necessarily), Email-address, Working Title and other helpful information. The potential user can also propose a username. The identity information can be sent by mail or and electronic way (fax, email etc). The administrator sends back a response that confirms the fact that the user is system authenticated with a username and password for system access. The identity as well as the authenticated information is available to system administrator, who can reject a user after inappropriate behavior.

For using this system service, users must have locally on their PCs installed a client program (emailer), for instance MS-Outlook Express. Finally, the identity information submission is made using the method of store-and-forward and as a result the transaction of a user request is not made concurrently.

## Announcements

It is the place where the announcements are “hanged”. Through these announcements user can take several information, for instance, information about the availability of the web site of PLATON, information about related material in European Union. The system administrator is responsible for “hanging”, keeping, refreshing and dropping of all announcements. User can simply read the announcement but they cannot “hang” theirs.

## Help topics

Users often need some kind of help or need to send their comments, question or remarks to system administrator, using email.

## CONCLUSIONS AND FUTURE WORK

The ODL tool of PLATON is one of the first attempts for introducing teletraining methods producing training material from the scratch in order to provide this material to teachers working with special social groups.

The system uses Internet technologies and tries to make a first contact and interference in the subject of social prohibition. For these reasons, it is considered to be of great importance and high interest.

The system could support the separation of users in smaller working groups based on common interests of members, and have its own Bulletin Board, Library etc. Substantially, the concept of “Shared Workspaces”

should enhance the system supporting collaboration and services like “Chat”.

On the other hand, there is the need for holding on-line lessons. A service of “Teleconference” could be the next step of the teletraining method up to now available in Platon system. The students will be able to have audio and visual contact with the teacher (trainer) and share documents and applications. With such an improvement, the dialogue method is mainly introduced.

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