

Open Distance Interactive SyStem for Educational Applications ODYSSEAS

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ABSTRACT

The main purpose of this paper is to present the project research, development, installation and finally the function of a total system of tele-education and tele-presentation by means of the techniques of videoconference of the Internet which are able to function through narrow band transition. Moreover, the project aims at the application of its results into the organizations, which are representatives of the Greek economy such as the mass media.

The development of the general system is based upon the World Wide Web (WWW), assuring the friendly environment, the existent familiarity of the users and indisputably the wider spread of it considering the fact that it will run under services of the Internet. The realization of the project is based on the philosophy of the development of Teleconference Centers, which work simultaneously as virtual and teaching classrooms that support interactive flow of information in the form of multimedia in real time or on demand.

In terms of the accomplishment of a total educational system, it is highly recommended to develop new services and tools through Internet (like joint editor, on line syllabus) and multimedia databases of multiple themes as well as smart gadgets of search (intelligent systems). The use of the above means provide a proper educational environment which include the whole educational procedure, that means the production, preparation and completion of the lesson via the Internet .The additional support of the students is also included.

Finally, it would be a subjective way of evaluation of the system ODISEAS its comparison with the other similar commerce systems of World Market.

INTRODUCTION

The educational system ODISEAS makes use of both synchronous and asynchronous means of communication and collaboration in order not only to overcome the limitations that time and place of education create but also to satisfy the needs of the students by various means of communication. The model of the virtual classroom through the services of videoconference is applied together with general capability of real time cooperative activities.

Apart from the model of the virtual classroom, the model of the Supported Self-education is being used. One basic principle that rules the system of the tele-education in order to support self-education is the capability of the student not only to attend the lesson but also to intervene in the normal flow and structure of it (self-guidance). The philosophy of this model is learning centered.

DESCRIPTION

The three participants will have one teleconference room each. The rooms will have a number of PC's connected in LAN (100Mbps) with which they will connect to the Internet (10Mbps). Four ISDN lines will connect the three teleconference rooms internally in order to improve the speed of the connection and the quality of teleconference. Also through the ISDN connection the three participants will have a better control of the available bandwidth. This means that tasks such as multicast traffic of educational videos that will be necessary at certain times will not in any case overload the local network. For security reasons, each of the three rooms will not have access to the web through the LAN of another room.

Even though most of the real-time education and web-based education needs of the project will be covered by "ODISSEAS" software, for certain needs of the project the students will be able to use three other software packs WebCT, Classpoint and IP/TV.

In the above context our prime educational goal was to create a software that will combine synchronous and asynchronous methods of teaching, as an effort to overcome and education problems and to provide the student with the capability of being educated. There are four basic axes that define the services that "ODISSEAS" provides

- Real -time class (Teleconference servers, web browsing, real time display of class material)
- Self – Education (Educational Scenarios for building a course, Syllabus Editor, Calendar)
- Communication Tools for the students (E-mail , Bulletin board, Chat, Discussion List)
- Examination and Evaluation. (Multiple choice and Matching quizzes as well as self tests for the students)

VIRTUAL CLASSROOM

The analysis of the general needs of the educational system and its services is centered on the following three steps of the educational procedure:

- Preparation of the virtual classroom
- Function of the virtual classroom
- Consolidation-evaluation

Preparation-Activities (Non synchronous stage)

Design and determination of the parameters of the interactive environment of the lessons through the web by web browsers have been performed .The full material of the lessons of the Tele-education is stored into a local or distant (networked) database from which the user is able to acquire the information according to the principles of the design

of the distant education .On the one hand, the teacher has the opportunity to communicate with the specialists and announce the lesson and on the other hand ,the students are able to study the present material and pose the first questions.

Operation of Virtual Class-Activities (Synchronous stage)

During the lesson the educator, through the system of videoconference, multipoint video/audio, text chat, shared whiteboards, web based pre-, post-, in class interactive program of questions, presents the material and the students can cooperate in groups .In addition, the system, by means of telepointers, inform the student to acquire additional material. Lastly, the whole procedure is registered so that the teacher as well as the student can use it in future.

Non synchronous stage Post-class-Activities

The survey of the classroom concerns the part of the procedure as soon as the synchronous stage of the virtual classroom is completed. Certainly, it can be consisted by many stages and units of lessons .The material that has already been presented in the virtual classroom is accessible. There are questions of better understanding of the lesson, multiple tests so that there is a general view of the progress of the students.

There are four different types of accounts in "ODISSEAS", ADMINISTRATOR, PROFESSOR, STUDENT, and CONSULTANT. We have chosen to replace the account of the grader that already exists in other packs available in the market. Instead we created a new account, that of a consultant. The students of each class will be divided into different groups (randomly, or in any other way the professor chooses) and each group will be supervised by a consultant. A consultant will not only be responsible for grading the tests and quizzes of the students but also will also answer their questions, motivate them, encourage their cooperation with each other and stimulate their interest for the class. A more active role of the consultant has been one of our prime goals since we believe that this follows the new trends in educational systems. As far as the professor of the class is concerned, we tried in various ways to make the work easier and more effective. For this reason we have built a Class – Wizard with which the professor is able to chose before starting to design a course and the tools that he believes to be useful for his class. The Wizard will guide the designer step by step through the basic axis already described. Starting from the structure and the display of the course material (Before Class) and moving to the Real – Time class and eventually to the evaluation of the students, the professor and the course itself (After Class).

The design of an Expert system was also done in the above context.

So far the professor was able to place his course material electronically only with the standard structured method. This means that he had to create paragraphs, sections and subsections through which the student would navigate linearly. Such a scenario even though popular and easy to use does not take advantage in full, of the capabilities provided to the designer but computer technology. In this work we chose to allow the professor to place the material in other ways too, some of which might fit better his philosophy and the goals of his course. In “ODISSEAS” the professor can use some other educational scenarios for web- based education. We inserted an unstructured scenario by which the student can move through the pages by links. There can be several links in

each page, which lead to other pages and so the navigation of the student in this case will be more free and random according to his initiative, motivation and knowledge. Finally we also accounted for a knowledge driven scenario in which the student is asked a question which he has to answer correctly before proceeding to the next page. In this way the professor is able to use three tutorials, structured, unstructured, and Knowledge driven according to the amount of freedom he wants to give to his students and of course according to his personal beliefs and ideas.

COMPARISON

We have chosen to compare the most popular educational software packs. The criterions of choosing WebCT and ClassPoint are based on the fact that those programs are widely used in most applications. In addition, WebCT covers the needs of asynchronous education whereas ClassPoint is mostly use for Real-Time Class applications. Moreover, those packs are constantly adapting by new versions to the new needs and trends.

The comparison of these packs will be done through three basic axes. Firstly, Communication and Interaction of Students, secondly Assessment and Evaluation Tools and thirdly Class Management. For each of those axes we have chosen the basic criterions for the comparison. For better understanding we constructed the tables below:

Assessment and Evaluation

Criteria	ODISSEAS	WebCT	Classpoint
Quizzes	Multiple Choice, Matching , Essay, Oral Exam	Multiple Choice, Matching and Essay	Oral Exam
Assignment Submission	Dropbox for submission, Consultant	Dropbox for submission, Grader	none
Evaluation of Class by Student	SpecialForm distributed to Students	none	none
Evaluation of Professor by Student	SpecialForm distributed to Students	none	none

Communication and Interaction

Criteria	ODISSEAS	WebCT	ClassPoint
Teleconference (Real time Class)	Teleconference Servers, Presentation Board, Online Electronic Course material	none	Teleconference Servers, Web Browsing
Intelligent Search Engine	Expert System	Search for Keywords	none
Announcements	Bulletin Board, Homepage announcements	Bulletin Board, Homepage announcements	Homepage announcements
E-Mail	ODISEAS mail server	WebCt mail server	Normal Inernet Mail
Group Discussion	Groups of Students, Consultant Discussion, Discussion List	Rooms,	none
Chat	Chat	Chat	Chat

Class Management

Criteria	ODISSEAS	WebCT	ClassPoint
Account Management	Four Password Protected accounts	Proffessor, Student, Grader, Administrator, Password protected	Instuctor, Student, Administrator, Password Protected
Statistics	Statistical Results of grades,e.t.c	Statistical Results of grades,e.t.c	none
Student Tracking			
Tutorials	Structured, Unstructured, Knowledge Driven	Structured	none
Online Marking	YES	YES	none

CONCLUSIONS

The Odisseas has one important advantage compared to the other similar systems of the World Market. It enables educator build a lesson in a very easy way using friendly and simple wizards for the planning of a web education lesson. The Odisseas system divides the education process in three parts: the pre class, the in class and the post class. This being the case, the educator can painlessly and successfully build a web educational lesson.

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