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Abstract: VL-CATS is a European-funded project with objective to create a Web-based environment for the delivery of distance training in official statistics and strategic management. In this paper the user requirements analysis performed for VL-CATS is analyzed. The project's organizational characteristics and the results obtained until now are also, briefly, presented.

Keywords: e-learning; official statistics, user requirements analysis, state-of-the-art analysis, functional specifications

1. Introduction

In the so-called 'information era' where perpetual changes occur in all the fields of our lives, the concept of continuous training becomes impelling for many professionals. In this context, distance learning, and even more e-learning, that is distance learning via the Internet, constitutes a popular subject matter. Its advantages are easily identified: it is time and cost effective, it is adaptable to job and place priorities (busy professional schedules), it can be more learner centred and so on.

2. Overview of the Project

2.1 Orientation and Objectives

The VL-CATS project is a unified approach of a Virtual Library (VL) and a Computer Assisted Training (CAT) system. It will host general information like a VL and, in addition, courses will be developed for delivery of distance education. Official statistics and strategic management, fields currently underdeveloped in the Web, are the topics on which the system will, originally, focus, having as target population public administration officials.

This Web-based application is planned to utilize, elaborate and expand characteristics stemming from the latest technological advances in the field. The electronic environment will be built on a groupware application based on CIRCA, an Internet-based groupware application service.

2.2 Functional Characteristics of the System

As it has already been mentioned, VL-CATS will be a computer aided training system prototype, based on a groupware system. The main characteristic of this system is its capacity to make effective sharing and utilisation of resources, for example an obvious implementation is the delivery of WWW based courses. This sharing of resources is based on the distribution of the users along work groups.

Based on the preliminary design of the project the following services will be available to the users of the system: i) The Virtual Library; ii) Newsgroups; iii) White board; iv) Student lockers; v) A tutor personal locker and tool case.

2.3 State of the Art Analysis

In order to set off the development procedure of the system, the first steps that had to be made were the user requirements identification and the state of the art analysis. User requirements analysis is going to be described in detail in the following section. State of the art analysis is also briefly summarized here, since its results were used for the construction of user requirements.

The expressed objectives of state of the art analysis were the review and evaluation of existing virtual libraries and e-learning sites. Probably, the most prominent conclusion of the state of the art analysis is that most of the Web based products despite their quality, support mainly classroom work or are suitable for self-learning. In addition, even Universities specializing in distance teaching use the Internet only for downloading paper documents and e-mail communication [1]. Therefore, there is still a lot of research potential when it comes to delivering education or training at distance through the Internet. It is expected that since the work of different tutors will be available for comparison, improvement in the different methods and modes for delivering courses will accelerate [1].

3. Review of User Requirements Analysis

As we previously mentioned, during the first phase of the project a user requirements study was performed. This was the first step towards formulating the initial particular design specifications of the VL-CATS system. The expressed objectives were to identify requirements regarding VL-CATS functionality and the contents of the site.

3.1 Methodology

Requirements analysis is the part of analysis that concentrates on the issues that need to be taken into account during the design phase of the system rather than how these

requirements are going to be implemented. In general, requirements can be grouped in three main categories:

- Organization and business requirements
- Technical requirements.
- User requirements from the user's point of view.

The last category is going to be further elaborated in the sequel, in order to present the actions that were undertaken in order to design a system that has understood who will the future users be, what are their current practices and what are their needs.

So, the development of the user requirements has been based on a three-stage procedure, comprising a data driven analysis:

- *Comprehension of the user context*; Construction of the profile of the prospective users of the system.
- *Assessment of the feasibility of several system concepts*; Identification of the characteristics of existing products and the reactions of their users to their functionality.
- *Consolidation of the user requirements*; Requirements are grouped, in a systematic way, according to their relation to the tasks that the users will perform when they will use the system.

The extraction of user requirements in the first two steps presented above has been based on the State of Art Analysis, a Literature Review and a Small-Scale Survey. Overall input from partners of the project was also acquired.

3.2 Results of User Requirements Analysis

The previously described methodology led to a series of results concerning requirements that users have from such a system as VL-CATS. The key-result is that the users feel comfortable to the traditional instructional model. Such a model consists of the following tasks (described in detail later on): Delivery of information; Completion of work; Submission of work; Assessment; Progress recorded; Feedback; Other issues of general relation to the use of the system. This structure was also verified by most of the sites of the state of the art analysis.

Based on this arrangement the several user requirements were organised, allowing thus their implementation during the subsequent construction phase of VL-CATS. To sum up with, the bedrock principles that have to be followed in the design of the framework of VL-CATS courses are:

- *Uniformity and User-Friendliness*

so that the user can easily get familiar with the system;

- *Coherence and guidance*

so that the distance learner does not get lost trying to navigate him/herself through a huge amount of information and resources;

- *Adaptability*

which would let "expert-user", i.e. user already acquainted with the system or has some previous knowledge on a specific course, to overcome unnecessary parts of the course.

The requirements presented above constitute the 'what-to-do' part of the user requirements analysis. That is they state the user requirements from the users' point of view, without taking into account how these 'requests' could be satisfied in the system under realization. A supplementary analysis, based on the requirements described above, provided us with insight on the 'how-to-do' part of the analysis, too, i.e. the functionality of VL-CATS. This part of analysis led of a series of specific tools for authors-tutors of courses as well as for students and general users of the system.

4. Conclusion

The innovation behind the VL-CATS project is the full utilization of the Internet. Despite the several considerations that arise when the teaching activity is replaced by technology [2], VL-CATS is based on a groupware system that allows efficient as well as intimate and straightforward communication between the tutor and the student, as well as inside the student group. In other words the aim of VL-CATS is not to replace the human factor, but to help overcome in an efficient way the problems that arise when an adult wants to attend an educational program but cannot due to place, time and cost difficulties.

Moreover, continuous educational services as well as interchange of ideas will be feasible, since the site aims at being a node providing life-long vocational training. Furthermore, its target population, public administration officials, have identified needs, which are not faced by any Internet service today. VL-CATS' optimum use would be to set the base of a European virtual forum of official statistics.

In this paper we demonstrated the general outline of an innovative system for on-line courses. Since, this project is currently under progress we presented only the material that has acquired a complete structure, with the hope of stimulating further discussion on the issues deployed in the project. Such a discussion could turn out to be useful, apart from this project only, to other relevant projects currently or oncoming.

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