Collaborative E-Learning Model

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Abstract
In this paper we will present a model for an e-learning system. We propose a collaborative system because in our days collaboration became a very important tool and not just a theory. Our approach is oriented towards the interaction between teachers and students. We intend to focus our research on providing a system that encourages the collaboration between students and teachers in order to provide better study environment.
The article will present our approach, the design of an e-learning model and how such a system will work.

Keywords: E-learning, Collaboration, Design

1. Introduction
In our days there are a lot of possibilities to study. Unfortunately, few of them provide opportunity to brake time and distance barriers. Not every student has the possibility to follow a school on a strict program basis. This is why we consider e-learning a great opportunity to allow every person to follow any school he wants.

Most e-learning systems are provided by universities, but their courses are not 100% Internet based. Even more, there are a lot of courses on the internet, but one could never know if the one he chooses is the best for him and his needs.

Thus, we propose an e-learning model that will satisfy the majority of those who are interested in studying from distance, using appropriate e-learning systems.

Our system will gather and provide e-courses from prestigious universities. Famous teachers and researchers will guaranty the validity and accuracy of the information provided by the course; thereby, people interested in our system will have more faith and trust in the virtual school.

Thus, the system will fully integrate a collaborative process model between teachers, students, universities, and economical environment in order to deliver a solution that will provide answer to any stakeholder's specific needs.

2. E-learning, Collaboration, E-collaboration
Derek Stockley defines e-learning as the delivery of a learning, training or education program by electronic means. E-learning involves the use of a computer or electronic device (e.g. a mobile phone) in some way to provide training, educational, or learning material.

The speedy century we live in demands new e-learning systems as people seem to be more than busy. Time is insufficient but the need to learn more, to develop knowledge is a key factor to success.

The impact of e-learning platforms is largely due to media technologies used to achieve them. The benefits of their use are represented by consumption reduction, the possibility of adapting programs which are customized to accommodate with rapid change and new knowledge in various
fields, expanded opportunities for interdisciplinary education and, not least, significant reduction of educational costs (Ţolea Enikő Elisabeta, Costin Aurelian Răzvan, 2010).

E-learning requires a computer and a network to enable transfer of skills and knowledge. E-learning refers to all forms of electronically supported learning and teaching systems, which have a procedural character and aim to the construction of knowledge. E-Learning systems reference to individual experience, practice and knowledge of the learner. Information and communication systems, whether networked or not, serve as specific media to implement the learning process (Tavangarian D. et al, 2008).

Michael Schrage said in his book “Shared minds” that “…collaboration is the process of shared creation”. This is the most concrete explication of its meaning.

Collaboration uses the C-Three (cooperation, coordination, and communication) as a set of tools to achieve its goal but it should not be confused with these terms. As you will see later in this article, the proposed system uses specific tools of the 3C’s to implement a fully collaborative procedure, permanently encouraging creativity and shared procedures.

In our perception, collaborative project e-learning systems have to include the following:

- a) tools for the 3C’s (Communication, Coordination, Cooperation);
- b) a precise workflow management;
- c) and document management functionalities.

Communication refers to the way people interact, how they share ideas and understand each other. Therefore, the e-learning system should provide all the existing tools to enable users' communication:

- a) Face to Face communication;
- b) Video Conferencing tools;
- c) Audio Conferencing tools;
- d) Telephone;
- e) Net Radio;
- f) Chat/ Instant Messaging;
- g) E-mail.

The main issue about communication is that even if someone is listening and interfering they may not be collaborating because everyone has he’s own ideas and way of understanding things. Thus, we have to provide specific coordination procedures in a way in which we still encourage creativity and, in the same time, we implement standard communication rules to discourage disputes.

Coordination is all about balance and symmetry. Coordination is a framework used to ensure coordination between central office and field units. It is used to achieve efficiency. (Leo Denise, 2005)

Cooperation is very important in a group, in organizations and even between humans. If we refer specifically to an organization where a collaborative system is integrated, cooperation is the key of success as it can be seen in Figure 1.

In today’s business world there is a saying: “time is money”. E-collaboration has another perspective on this issue. IT specialists came with a solution to reduce costs inner an organization. This solution is the groupware, which is a compilation of breaking space borders, going behind time limits and nevertheless saving money (Costin Aurelian Răzvan, Ţolea Enikő Elisabeta, 2010).

![Figure 1. 3C vs Collaboration model](Hugo Fuks and Alberto Raposo, 2008)
3. Proposed model's structure

Nowadays, there is a new multidisciplinary field called Computer Supported Cooperative Work (CSCW) which studies the opportunity and the way systems that support collaborative working should be implied.

CSCW is a design-oriented academic field bringing together social psychologists, sociologists, and computer scientists, among others [wikipeadia].

Our project aims to create a collaborative e-learning model in which those who want to learn shall have the opportunity to do it. The main idea of our project is trust. We want the users to trust our courses and teachers.

Collaborative learning is a situation in which two or more people learn or attempt to learn something together (Dillenbourg P., 1999). E-collaborative e-learning is the situation in which this process takes place in a network. “Collaborative learning” is an umbrella term for a variety of educational approaches involving joint intellectual effort by students, or students and teachers together (Barbara Leigh Smith and Jean T. MacGregor).

First of all we want to create an agreement with prestigious universities, in order to have the support for our courses. Once established this agreement, and created the collaboration with teachers we can go further with our project.

After that, we create a website which will provide the needed information for students. Students will have the possibility to choose what course they want to take, and also choose whom courses will follow. Below you can see the workflow of this project and its architecture.

As it can be seen in Figure 2, in order to provide all the information described above we need a database (DB). The database will include in its structure all the information necessary for running the system in optimal conditions.

After the analysis phase of the project we concluded that the portal should include the following:

- Advanced Search Engine by category here we talk about courses and their correspondent teachers;
- The target audience of the portal is not limited to Romania and Romanian speakers. It is recommendable for information to be translated in several international languages such as English, French, German, Italian, and Spanish and in other languages according to the requirements.

For reasons of simplicity and ergonomics in implementing the database and application development, we will insert a column in the tables relating to specific languages. The database was designed so as to be easily maintained and changed;
• Account and password for each user;
• Discussion forum for various problems;

The proposed system has a simple architecture. On one hand we have a database that provides information. On the other hand we have the user interface that communicates with the database. (Fig.3). It is essential for us to capture all information created by the collaboration between users and save it in the same database. Thus, content management is a must for our project.

The user interface provides collaborative system's specific tools. Users have at their disposal all tools they need for a fully collaborative learning system. But collaboration is not just about these tools. It implies several things as well: common goal, predefined process rules, individual roles, shared responsibility, shared risks, creativity, and common vision. Therefore we think that teachers or another named user to be granted with human coordination rights. It is the human coordinator responsibility to assure that everybody is aware and follows the imposed rules and follows the imposed common goal, which in our case is learning. The human coordinator is the one who compiles the working rules, provide a role for each user, and supervise users' communication and cooperation processes, by describing and imposing a specific standard for how these processes will take place. We have chosen this flexible approach as we consider that every course should be approached in a unique way. Creativity must not be obstructed by standards and rules so human interference is a must for such a system.

Figure 3. Prototype

Figure 4. System Scroll
The portal is built upon a solid structured database which contains validated and precise information. The database contains information about: the academic curricula, e-learning domains, professors and their courses, information about the users, exam models, and user rankings and opinions. The databases' architecture is represented in Figure 5:

![Application Structure - Communication between the users-interface and database](http://www.sintactic.ro/solutii/baze-de-date.html)

4. Conclusions

As shown, e-collaboration is not just about communicating and information-exchange. Groupware could assure a way of successful studying program in a dynamic era and environment. Therefore, we strongly believe, e-collaboration will develop into a main tool in the future for developing e-learning systems.

With the fast development of the area of collaborative networks, showing in a diversity of application domains, theoreticians say that it is becoming crucial to systematize and consolidate the knowledge in this area.

Through e-learning students can learn, breaking the space barriers. It has been shown that e-learning increases knowledge retention factor by 50 per cent against teacher-led trainings. The impact of internet on our life is increasing, and we think that our project will contribute to the development of e-learning.

Our system provides a successful platform for encouraging students to learn from distance. Once students gain trust and collaborate between them, and with their teachers, we are convinced that they will have all the things needed to learn new things and in the same time to finish a school.

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