

THE IMPACT OF COLLABORATIVE SYSTEMS ON ACADEMIA, e-BUSINESS AND INFORMATION SOCIETY

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Abstract

The economic impact of the digital revolution is highly important. Without www, globalization and outsourcing would have not been possible. The impact of the IT technological boom, especially on the higher education process is highly important. The facilities offered by the IT technological environments allow major changes both at the level of the teaching materials' design and the projection of the learning environment, by using new systems and collaborative-participative technologies, student-oriented with distributed resources and a real fluidity of the roles in the learning process. Nowadays, small and middle – sized enterprises use the same collaborative systems (or their components) known by abbreviations such as ERP, CRM, SCM, HRS, etc. in order to provide data and information to the decision-making bodies at all levels, in due time. One of the problems in using collaborative systems has been the complexity of large-scale systems and, therefore, the main topics of this paper are: basic components, development of collaborative systems, benefits, costs, replacing/ re-implementing, e-Business, structuring the manufacturing Database, achievement of these systems successfully etc, and integration of these systems into the academic curriculum.

Keywords: Collaborative Systems, e-Learning, m-Learning, i-Click Technologies, Globalization, e- Business, Information Society

1. e-Learning, m-Learning as Computer-supported Collaborative Learning (CSCL)

Electronic learning (or **e-Learning** or **eLearning**) is a type of Technology supported education/learning (TSL) in which the medium of instruction is computer technology, particularly involving digital technologies. E-learning has been defined as "pedagogy empowered by digital technology" ^[1]. In some instances, no in-person interaction takes place. *E-learning* is used interchangeably in a wide variety of contexts. In companies, it refers to the strategies that use the company network to deliver training courses to employees.

M-learning, or "mobile learning", now commonly abbreviated to "m-Learning", has different meanings for different communities. Although related to e-learning and distance education, it is distinct in its focus on learning across contexts and learning with mobile devices. One definition of mobile learning is: *Learning that happens across locations, or that takes advantage of learning opportunities offered by portable technologies*. In other words, mobile learning decreases limitation of learning location with the mobility of general portable devices. (reference:<http://www.grayharriman.com/mlearning.htm>)

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Computer-supported collaborative learning (CSCL)

"Computer-supported collaborative learning (CSCL) is one of the most promising innovations to improve teaching and learning with the help of modern information and communication technology. Collaborative or group learning refers to instructional methods whereby students are encouraged or required to work together on learning tasks. It is widely agreed to distinguish collaborative learning from the traditional 'direct transfer model in which the instructor is assumed to be the distributor of knowledge and skills. " [Lehtinen].

Benefits of e-Learning versus traditional classroom settings *e-Learning can provide for major benefits for the organizations and individuals involved.*

With virtual notes instead of paper notes and online assessments instead of paper assessments, e-Learning is a more environmentally friendly solution. In many contexts, e-Learning is self-paced and the learning sessions are available 24x7. Learners are not bound to a specific day/time to physically attend classes. They can also pause learning sessions at their convenience. All in all, in the future, more and more collaborative learning systems will arise, which can entirely change our idea of education: receiving education will become an equal collaboration between instructors and students, and the latter will be the core of education. That kind of system that we have developed has been used not only to teach and to demonstrate, but also to support students' initiative in study and collaborative exploitation. Traditional teaching means control and dominance, but collaborative learning system is based on the WWW, which combines students from all over the world. In this way, everyone can share the collective wisdom.

Collaborative technology allows the collaboration with other people, at their convenience. E-mail, public databases, the Internet, and intranets are all forms of asynchronous communication. Collaborative technology provides these key benefits to businesses.

Collaborative software (also referred to as groupware or workgroup support systems) is the software designed to help people involved in a common task to achieve their goals. Collaborative software is the basis for computer supported cooperative work. The study of computer-supported collaboration includes the study of this software and social phenomena associated with it. There are three levels of collaboration: Electronic communication tools ; Electronic conferencing tools; Collaborative management tools.

2. The Collaborative Systems Design and Collaborative software packages are support of e-Learning and m-Learning

In today's academic environment, Collaborative Systems have had a great impact on all types of courses, provided by the university curricula: bachelor's degree, master degree, Ph.D., post doctoral or continuous learning. Collaborative Systems have a modular structure, consisting of subsystems and components, which offer the technical support for

a modern, participative and interactive education through The Information – Documentation-Self-Assessment-Examination System, providing not only an efficient administration of the educational process through the Subsystem of Information Management and making connections, interoperations with other academic systems/ non-academic through The Subsystem for digital connections, but also offering other various facilities.

The Information–Documentation-Self-Assessment-Examination System (WebUnivLearn) offers relevant information about the activities that take place within the university campus to the students, teaching staff and visitors and it includes:

- the web portal component;
- the info kiosk component;
- the e-learning/m-Learning component (WebUnivLearn);
- the virtual library component;

Taking into account this structure, we only focus on the last two components. WebUnivLearn component provides the technical support for an interactive and participative academic education and administers significant elements from the course design for each subject in the academic curriculum (bachelor's degree, master degree, Ph.D., continuous learning):

Syllabus

Course Content

Creating and Managing Modules

External Link – Course Link

Learning Modules

Students' registration

Self-assessment and evaluation tests

Managing Tests and Surveys

User Progress

Statistic Tracking

The WebUnivLearn component offers a lot of instruments (Course Tools) to its users, such as:

Announcements (Create or Edit Course Calendar Events)

Sent e-mail, File Exchange, Messages

Discussion Board

Create/Edit Collaboration Session

Students' registration and updating their scores during the semester

Video recording of the courses and memorize it on the web

Visualise the video modules on the web

Course map – Classroom Tools box

Ask Question –Chat

How to create or Edit a Test

Organizing and Managing Content

In order to emphasize the interactive and the participative role of the WebUnivLearn Component, we would like to draw your attention by presenting several details regarding the facilities offered by the i-Click Technology.

The i-clicker Technologies educational solutions can help turn any lecture into an active and engaging learning environment. Turning Technologies' proprietary technology provides maximum system flexibility and scalability - matching the unique needs of your assessment and testing objectives. Radio-frequency Response Card RF keypads are inexpensive, easy to transport and incredibly durable with a sealed form factor case. Responses are sent over 100 times per second for 8 seconds to ensure answer is transmitted and received.

The i-clicker Technologies can be installed on every laptop having the operating system XP or Windows and an USB port. Three basic elements make up a typical audience response system: polling software, response keypads, and a response receiver. Turning Technologies provides a variety of software and hardware options for you to choose from to meet your unique learning and meeting needs.

Polling Software:

- Author and present interactive questions.
- Charts and graphs displayed in real-time.
- Easy reporting and data management.

Response Devices (Fig. No.1)

- Small handheld devices send participant responses. Submit answers via a response receiver or Internet connection

Response Receivers (Fig. No. 2)

- Receivers capture participant responses.
- Plug and play and extremely portable.



Fig. No.1



Fig. No.2

Among the facilities offered by the Software of this technology we can enumerate:
- register the Ids (Response Code devisers) of all the students attending the course;

- memorize and visualize the multiple choice questions for each lesson. It is recommended to use two sets of questions containing 3 or 4 questions, which must be displayed in the middle and in the end of each lesson;
- register in due time (about 1 minute), the students' answers to all the displayed questions through Response Deviser (identified by the ID), recognize, memorize, quantify and make the statistical registration for each student's answers;
- make the statistical chart, in due time (about 0.5 minute), of all the answers to a given question and visualize the average value of all the answers in charts for each question, mentioning the correct answer;
- register each student's answers on questions and lessons, quantify and memorize the correct answers in grades given for each lesson;
- make the calculation of the final grade for the activity during the semester on account of the ongoing memorized answers and each student's course attendance.

Following these facilities offered by the i-Clicker technology, especially on account of the chart containing the answers given to each question displayed during the lesson, the teacher has a real dialogue with the class and he can identify, in due time, certain parts of the lesson which were misunderstood and he can explain to the students the misunderstandings in due time, and in the end of the semester the teacher has the registration of each student's activity which consists in the final grade calculated according to the points received for each lesson and the number of course attendances, too.

The Virtual Library Component offers the possibility to distantly consult the libraries from the University Campus by scanning the existing volumes and by implementing an IT system to access these volumes electronically. This component provides the following:

- offers the users the possibility to access much information from a terminal connected to the internet. Through this working method, the virtual library can be available to an unlimited number of users;
- implements the copyright policies for each material in the library and mentions the period of time for the material to be visualized and the list of the identified users, according to their account and password;
- uses the memorize-find system for the digitized documents, using the searching criteria and the logical construction in key words of the memorized documents;
- divide the volumes in the own virtual library from other virtual libraries, through the management system, thus giving the possibility to the users to search and access documents from more data sources.

3. The Collaborative Systems Design and Collaborative software packages are a great support for e-Business and Information Society

Globalization is an emerging process which offers opportunities, risks and challenges. The economic dimension of this process presents three areas more approachable such as: consumption globalization, production globalization and the globalization regarding the access to the critical resources. This process is in a full swing, from the perspectives of the technological innovations and their effective integration in the international economy.

In fig. no.3, one can follow the typical points of integration among these systems:

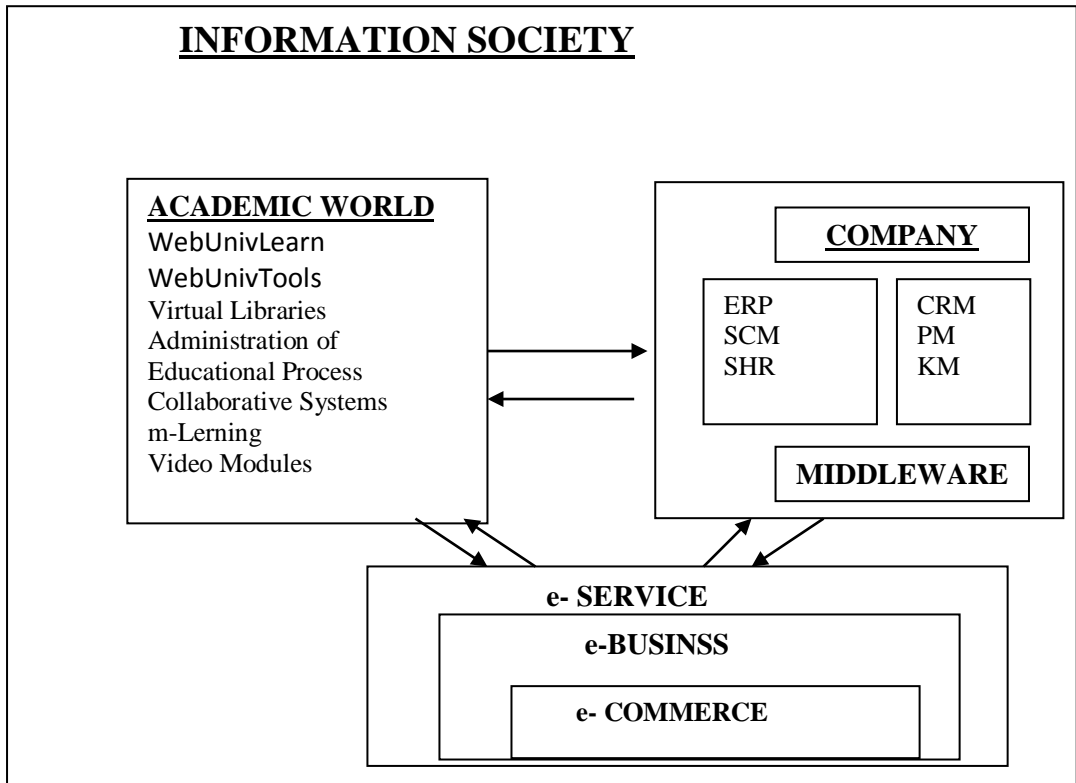


Fig. No.3 Collaborative Systems support of Academia, e-Business and Information Society

E-Business is considered a broader definition than e-commerce and it includes among others: the selling and buying of goods and services ; guarantee and maintenance services for customers; collaboration with business partners; the management of electronic transactions inside a company; any electronic services over the Internet which support the business. In e-Business, one can find systems such as CRM, ERP, SFM (Sales Force Management), SCM, EP (Electronic Procurement), SHR (Human Resources Management), e-Learning and the software for the integration type “middleware”.

The electronic markets can be divided in three basic categories, according to the majority shareholders and the operating method:

- Independent electronic markets, opened to any seller or buyer (ex. eBay, Thomson Reuters or Bloomberg);
- Electronic Markets sales - oriented (see “storefront” and “mall” Internet).
- Electronic markets purchases-oriented (e.g. E-licitatie.ro)

Collaboration—at least partly—is the integration of many different technologies into an application or environment to facilitate information sharing and information management. There are three major ways people interact: conversations, transactions, and collaborations.

The European Commission, through the I- 2010 program, revised in Lisbon, proposed to create a technological platform for the single European area that should provide solutions to four major challenges:

- To develop services of wide areas, of high speed in a united Europe, through coherent investments in all the member states.
- To encourage services, especially online services;
- To improve the platforms and the punctual communication devices;
- To provide the networks' protection and the Internet against frauds, noxious contents and also their security.

Conclusions

The Collaborative Systems and the Internet have changed both the academic environment and the business environment offering new opportunities for many domains in the information society. The mobile technology is present everywhere in the current society, being connected to the academic networks such as WebUnivLearn, which allowed complex experiences in e-learning and the results obtained through m-Learning represent the current direction to a modern academic education. The bachelor, as a product of the academic environment, is going to work in a company which is already part of the information society, because the company is already using web applications such as ERP, CRM, SCM, etc. For instance, we mention only the facilities offered by the e-SCM applications for the activities in the purchasing line within the companies, in order to meet customers' needs in due time, at minimal costs.

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