

Evaluation of Combined Collaborative and Problem-based Approach in a Web-based Distance Education Course



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Overview

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3. A Combined Learning Model
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Introduction I

- Technological Educational Institute (T.E.I.) of Lamia, Greece provides **distance learning opportunities to adults**
- The curriculum contains **22 online computer science and interdisciplinary courses**
- The courses have been partitioned in three categories (Introductory, Intermediate and Advanced-Masters)



Introduction II

- **Blackboard** (basic edition) 4 semesters
- **LAMS** (last 2 semesters)
- Courses on LAMS are still on the run
- Methodology considering administrative, technical and pedagogical issues
- Assessment



The Distance Learning Environment I

- 20 Learners per course
- Units (theory, examples, self-rating tests, unit tests, mid-term and final tests)
- Learning Content (presentations, documents, animations, audio/video)



The Distance Learning Environment II

- **Asynchronous and synchronous** Communication/Learning- **LMS's** collaboration tools and a **media server** (for webcasting/streaming):
 - e-mail
 - discussion forum
 - shared workspace,
 - virtual classroom,
 - chat, and
 - bulletin board



Learning Model

- Two models:
 - A **learner-oriented** model
 - A **combined collaborative learning (CL) & problem-based learning (PBL)**
- The former has been applied to the majority of courses whereas the latter to selected courses
- The derived results regarding the learner-oriented model have been presented in older works (e.g. in ICWL 07)



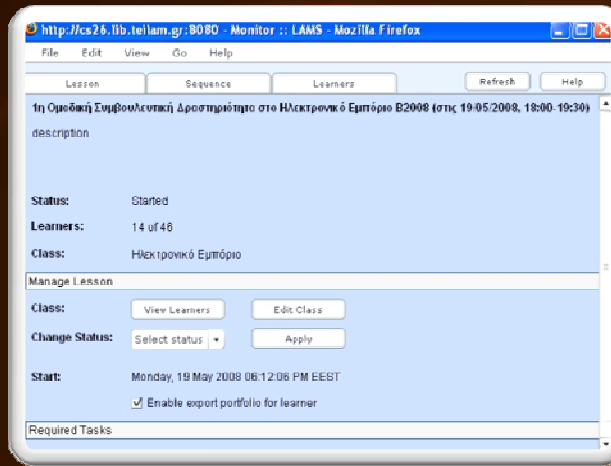
Combined Learning Model – I

- Instructional process:
 - an **initial phase** resembling (to a large degree) the learner-oriented method, and
 - a **subsequent phase** based on the integration of PBL and CL methods on groups created by the tutor
- Initial phase:
 - it introduces learners into the learning process and to group projects assigned
 - learners with collaboration - indications for group formation

Combined Learning Model – II

- Tutor assigns each group (part of) a specific problem
- Time to ponder over the posed problem
- Communication tools to discuss problem issues
- Tips or teaching material regarding process and problem





Applying the Combined Learning Model on E-COMMERCE COURSE

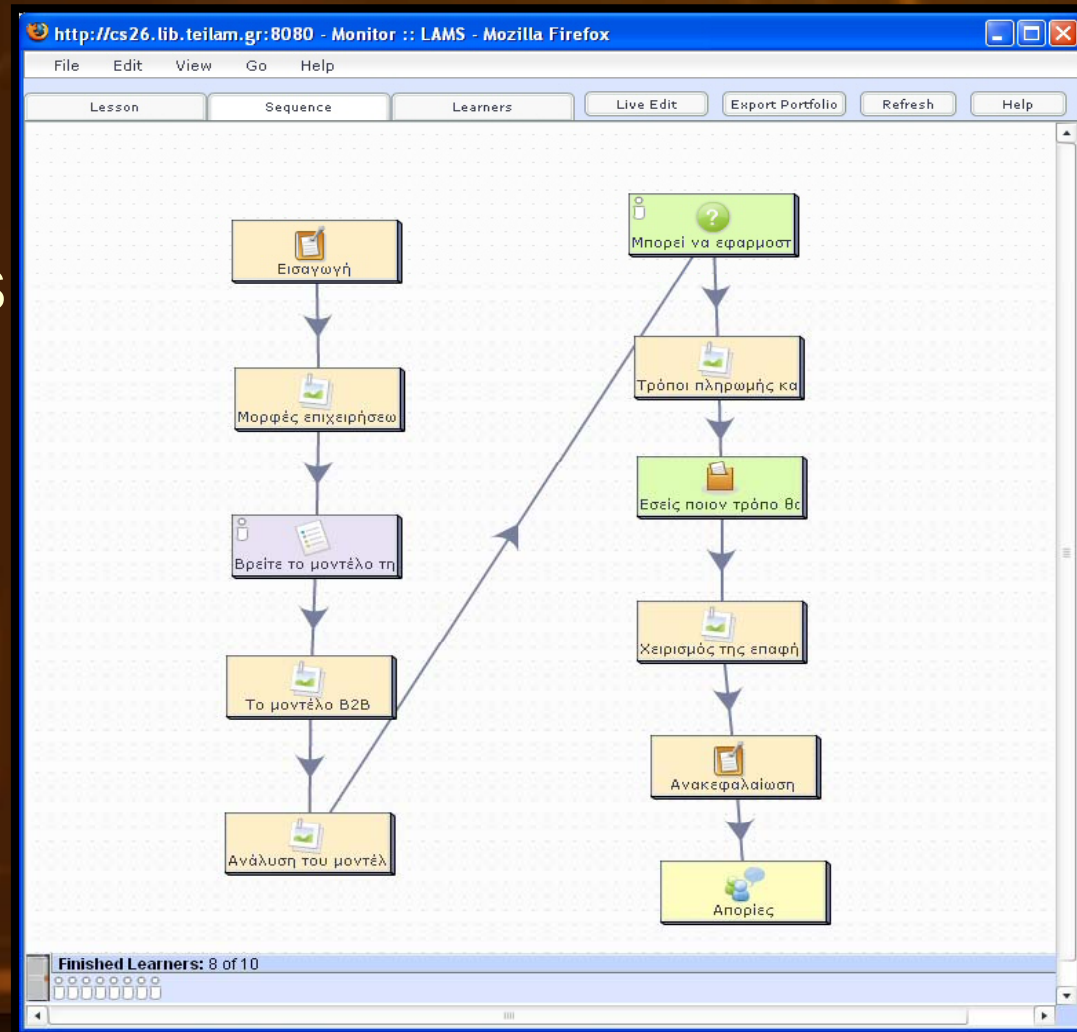
The E-Commerce Course

- Course aim: **basic concepts and technologies for creating an “electronic” business**
- **Nine (9) main Sequences Educational Activities in LAMS** addressing topics as
 - terminology,
 - models of e-commerce companies,
 - business organization issues (*payments, delivery of services and goods, client support*),
 - marketing for electronic companies,
 - functionality of an electronic shop, underlying technology and security



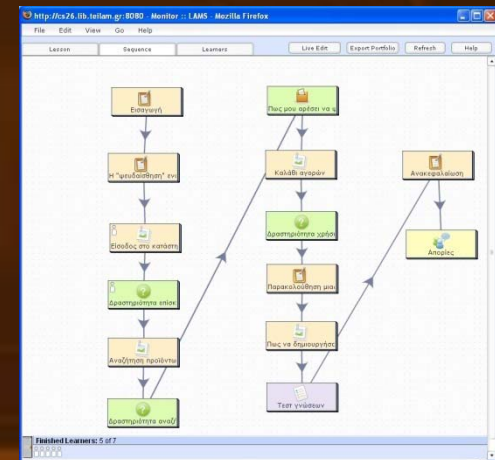
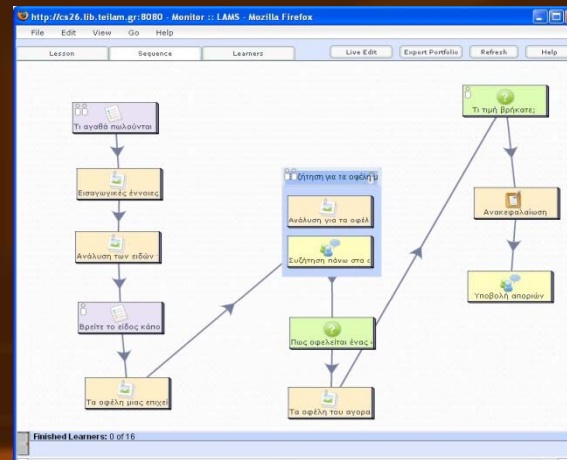
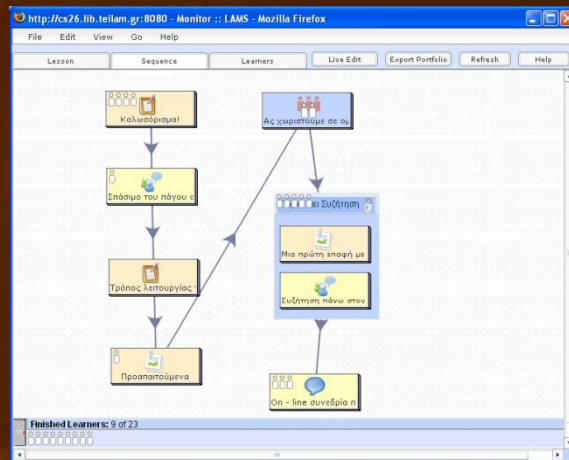
The E-Commerce Course II

- Example:
the 4th of the
nine Sequences
of Educational
Activities
(*Models of
electronic
shops*)



Applying the Combined Learning Model I/VI

- Groups of at most three - virtual “budget” for their Internet store
- A budget at the beginning of the course - students *no idea of the way should be exploited*



Applying the Combined Learning Model II/V

- **Four modules (stages)**
- Cause the students to **reconsider their decisions** e.g.:
 - in one module- **technology** of the store (e.g. *J2EE, Microsoft, Open Source etc.*) and **cost**
 - In the next module, the **type of the installation** (an in house data center, hosting in a provider, etc.)



Applying the Combined Learning Model III/V

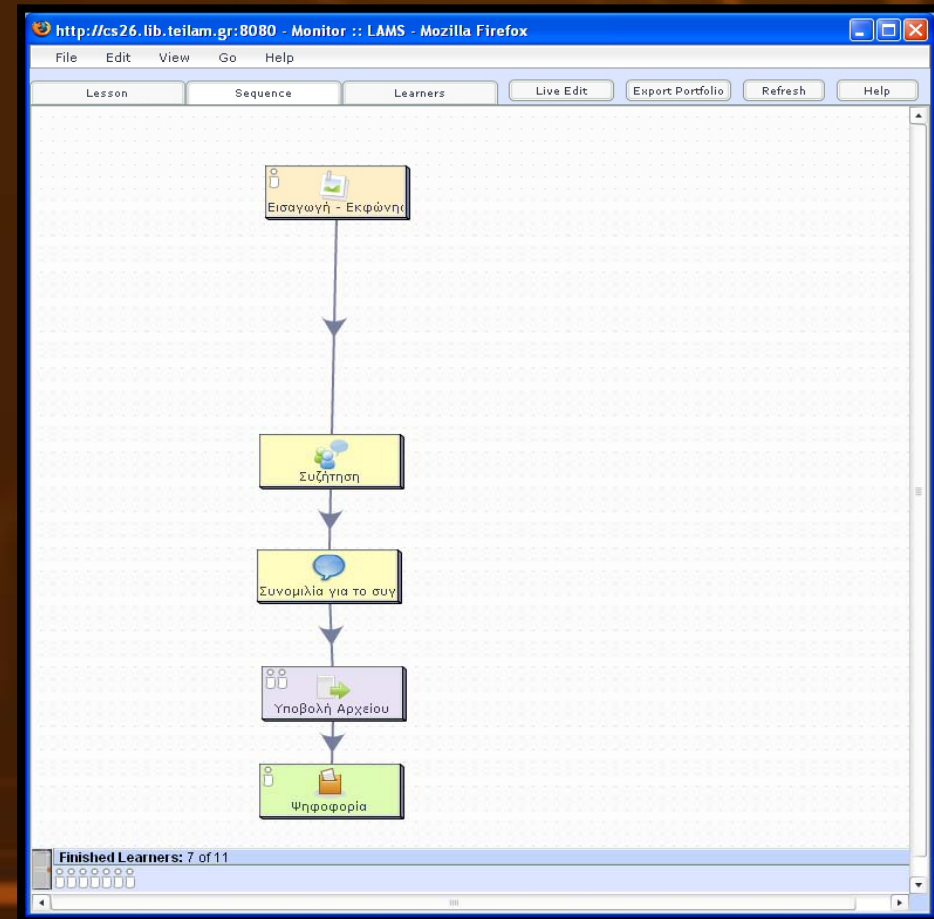
Topics:

1. **feasibility study** for the planned electronic company
2. a study about the **business structure** of the company
3. a high level **design of their internet application** representing the store
4. the implementation of the “**data center**” and the **security** of their application



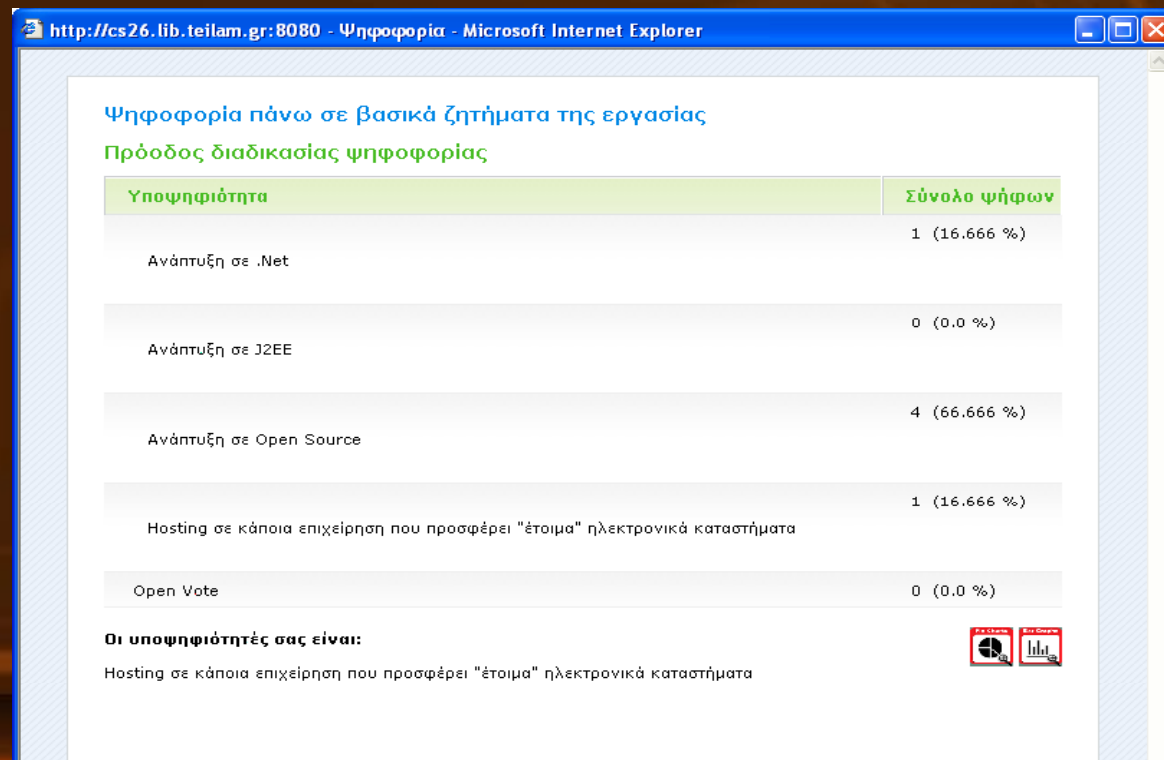
Applying the Combined Learning Model IV/V

- A module in LAMS as a separate sequence with independent tools :
 - a shared resources,
 - a forum,
 - a chat,
 - a submit files
 - a voting



Applying the Combined Learning Model V/V

- **Voting during** (about the underlying technology in module three) **the progress of a combined learning model course**

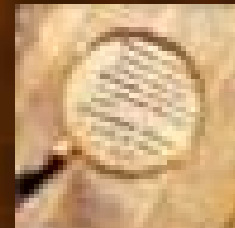




ASSESSMENT

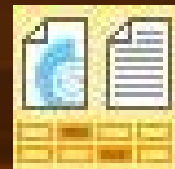
Assessment Method I

- distance learning setting and the knowledge acquired by learners
- LMS tools and conventional methods (learner-oriented model)
- Both individual and group progress is assessed



Assessment Method II

- Learner's portfolio is assessed:
 - personal contribution to projects assigned,
 - degree of interaction with the tutor, the other learners and the LMS, and,
 - his/her contribution in the LMS's shared resources
- **Results from the assessment process feedback the enhancement of the educational process**



Assessment Method III

- Learners' tests:
 - A pretest prior to the beginning of the course
 - Unit tests upon completion of a course unit
 - A midterm test or project
 - A final test
- Questionnaires (project coordinators, tutors and learners)



Assessment Results I (Students view)

- 90% - course satisfied their initial expectations,
- 90% - LAMS friendly and easy to use
- 50% - the performance of the other members of the class affected their own performance
- 90% criticized positively the whole learning process, material and the communication with the teacher
- 75% of the students believe that they should use the collaboration tools more often



Assessment Results II

(Teachers view 1/2)

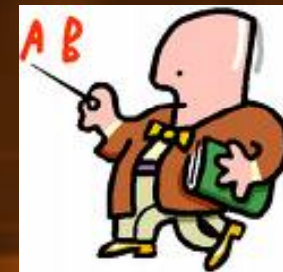
- very helpful - everything about their work was included in the same "logical" entity (**LAMS activity**)
- teacher - track the **different versions of a group's deliverable** and **compare the differences** from version to version
- The **voting** - a quick reference to other group's decisions



Assessment Results III

(Teachers view 2/2)

- Monitoring - respond quickly to the students' questions and the deliverables
- Group - **work independently** from the others and keep privacy in their results
- The **random criterion** - group members **not proved a good choice** for all groups



Proposed Improvements

- Synchronous videoconference -whiteboard
- Upload files > 1.0 Mb (Submit files)
- Ability to **change a vote during the activity** and see the progress of the results (e.g. a "history" of the voting)
 - in our case - voting as a final component
 - students were able to see only the final results (after all reconsiderations) and not interim results

CONCLUSIONS



Conclusions 1/2

- Traditional LMS will not meet all needs in all contexts.
- Students have the same possibilities to act those instructors and other staff members have in regular, less student-centered educational approaches.
- This model does not exclusively replace traditional learning approaches, but provide greater alignment with the life long learning.
- Instead of learning housed in learning objects and content, learning is embedded in rich learning activities and social spaces.

Conclusions 2/2

- Distance students are very active with technology, but once in an LMS space they seldom do more than the minimum required.
- Universities and educational institutions need to explore broad applications of technology – beyond simple LMS implementations.
- LAMS s were in general able to support an educational sequence representing the combined learning method.
- LAMS motivates tutors and students providing an easy to use and friendly learning environment.

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