IMPLEMENTING A COLLABORATIVE TASK IN dotLRN WEB-BASED LEARNING ENVIRONMENT

Alberto Bayón
Olga C. Santos
Jesús G. Boticario

aDeNu Research Group [http://adenu.ia.uned.es](http://adenu.ia.uned.es)
IMPLEMENTING A COLLABORATIVE TASK IN dotLRN WEB-BASED LEARNING ENVIRONMENT

- Objectives

- LFA experience

- Methodology

- Architecture

- Implementing

- Real collaboration Methodology
  – Involve students

- Intelligent systems (iLMS)
  – Improve effectiveness of the learning process
  – Adapting responses to students’ needs

- Context to implement the collaborative LFA extension

aDeNu Research Group [http://adenu.ia.uned.es](http://adenu.ia.uned.es)
IMPLEMENTING A COLLABORATIVE TASK IN dotLRN WEB-BASED LEARNING ENVIRONMENT

- Objectives
- LFA experience
- Methodology
- Architecture
- Implementing

- Achievements
- Unresolved

LFA PERFORMING
REAL COLLABORATION

aDeNu Research Group http://adenu.ia.uned.es
IMPLEMENTING A COLLABORATIVE TASK IN dotLRN WEB-BASED LEARNING ENVIRONMENT

- Objectives
  - LFA experience
- Methodology
- Architecture
- Implementing

**Interaction Step**
- Simulate the task
- Group Learners
- Select Moderator

**Individual Step**
- Individual Solution
- Create a Thread

**Collaborative Step**
- Rate other solutions
- Comment other solutions
- Create new versions
- Create a group answer
- Discuss the answer
- Send the answer

**Agreement Step**

aDeNu Research Group [http://adenu.ia.uned.es](http://adenu.ia.uned.es)
IMPLEMENTING A COLLABORATIVE TASK IN dotLRN WEB-BASED LEARNING ENVIRONMENT

- Objectives
- LFA experience
- Methodology
- Architecture
- Implementing

Interaction Module

Machine Learning Module

User Model

Adaptive Module

aDeNu Research Group http://adenu.ia.uned.es
IMPLEMENTING A COLLABORATIVE TASK IN dotLRN WEB-BASED LEARNING ENVIRONMENT

Interaction Module

- Provides the **services** required (forums, file storage, surveys) to execute the communication and collaboration among the learners.
- Stores **users interaction** in the students’ user model to be processed by the MLM.

Machine Learning Module

Adaptive Module

Objectives

LFA experience

Methodology

Architecture

Implementing
Interactive Module

- Provides the collaborative environment
- Offer communications tools
  - forums, chats, e-mail, common file storage areas, etc.
- Manages the collaborative task
  - Creation of surveys
  - Creation of groups
  - Assignment of permissions to learners
    - make visible the responses of the others students when defined
  - Rating others students’ responses

Objectives
- LFA experience
Methodology
Architecture
Implementing

aDeNu Research Group http://adenu.ia.uned.es
IMPLEMENTING A COLLABORATIVE TASK IN dotLRN WEB-BASED LEARNING ENVIRONMENT

- Objectives
- LFA experience
- Methodology
- Architecture
- Implementing

Machine Learning Module

- **Gathers data** (active and passive) from the users’ interactions carried out by the IM.
- **Learn the students’ indicators** with data mining techniques
- **Stores students’ indicators in the user model**
Machine Learning Module

- **Indicators:**
  - measure the interactions of the collaboration
  - *User profile*
    - participative, insightful, useful, non-collaborative, student with initiative or communicative student.
  - *Data come form*
    - *Forums structure:*
      - thread’s wideness and deepness, number of student who take part in each discussion, the threads in which a student takes part, if a new reply is sent always after a specific user contribution …
    - *Solution versions:*
      - number of rejected versions, number of version of each student, the length of the discussion when the student decide to create a new version …
  - *Ratings:*
    - Evolution of the survey in rating terms, if the discussion thread improves the rate or make rates worst, the most frequent value used by a user …
  - *Reading of messages:*
    - what does a student do after reading a message?, what is the order of a student for reading messages in the forum?, what does a student do while preparing the answer?, …
IMPLEMENTING A COLLABORATIVE TASK IN dotLRN WEB-BASED LEARNING ENVIRONMENT

• Objectives
  Adaptive Module
  • Provides recommendations to learners based on the information stored in the user model
  • Recommendations adapted to each user needs and preferences:
    • help users in the collaborative tasks
    • detect problems from similar user profiles
    • involve students in those tasks

• LFA experience

• Methodology

• Architecture

• Implementing

aDeNu Research Group http://adenu.ia.uned.es
Interactive Module

- Provides the collaborative environment
- Offer communications tools
  - forums, chats, e-mail, common file storage areas, etc.
- Manages the collaborative task
  - Creation of surveys
  - Creation of groups
  - Assignment of permissions to learners
    - make visible the responses of the others students when defined
  - Rating others students’ responses
IMPLEMENTING A COLLABORATIVE TASK IN dotLRN WEB-BASED LEARNING ENVIRONMENT

- Objectives
- LFA experience
- Methodology
- Architecture
- Implementing

- Based in previous aDeNu Project for LFA
- Methodology for real collaboration
  - Phases managed by roles and permissions:
  - dotLRN for Interaction Module
    - Subgroups
    - Forums
    - File storage
    - User Tracking
    - Cops for ratings
- Machine Learning & Data Mining:
  - Weka software
Thank you!

Any questions?

aDeNu Research Group http://adenu.ia.uned.es