



# Beyond the LMS

## Supporting Adaptive and Collaborative Learning

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# Motivation



- Moving forwards (Moodle in practice since 2004/2005)
- Putting the learner at the center, not the LMS
- Supporting instruction, not just presentation of content
- Measuring the important - not just the easy
- Improving the fairness of the grading process

# Adaptivity Issues

## Goals



- Improving the learning process for students with different pre-knowledge, personal characteristics and preferred learning styles
- Introducing a certain degree of adaptability to eCourses
- Developing appropriate tools to support such attempts so that students:
  - can explicitly choose different paths through the courses
  - or can be directed to different parts of the instructional material depending on the pace of their advancement in acquiring knowledge

# Adaptivity Issues

## Results



- eCourses as sets of interconnected topics able to exchange information between them and students' learning paths
- Extensions for Moodle needed to support personalized learning experiences (shaped as eLessons) created by:
  - directly connecting contents of different learning objects (pages)
  - vertically connecting learning objects from different contexts
  - tracing students' advancement and modifying their learning paths (conditional jumps from one learning object to the other depending on student's current and previous activity)
  - adaptive sequencing in a pre-test => study => post-test structured activities within eLessons
- Improved reusability of learning material
- Extended flexibility for both teachers and learners

# Supporting Collaboration Goals



- Ongoing work
- Using/creating different data mining techniques for analysing log files and other files that track learner activities in LMSs
- Modelling users and developing specific tools that would facilitate
  - (Semi-)automatic team formation
  - Teamwork assessment
- Providing students with more objective grades and detailed feedback on their actions
- Providing teachers with the complete analysis of a team's work and every student's individual contribution to it in a readable form
- Implementing software prototypes and integrating it into an LMS

# Supporting Collaboration

## Theoretical/Analytical Framing



- Connectivism
- Web 2.0 collaboration tools
- Discovery with models – modelling student individual differences, team formation
- Learning styles, activity tracking, data mining
- Social Network Analysis to analyze teamwork
- Visualization – assessment support

# Possible collaboration

