

## **Development-oriented eLearning Tool Evaluation: the Edukalibre Approach**

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*EdukaLibre*

[www.edukalibre.org](http://www.edukalibre.org)

## **Acknowledgements**

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## The Edukalibre idea

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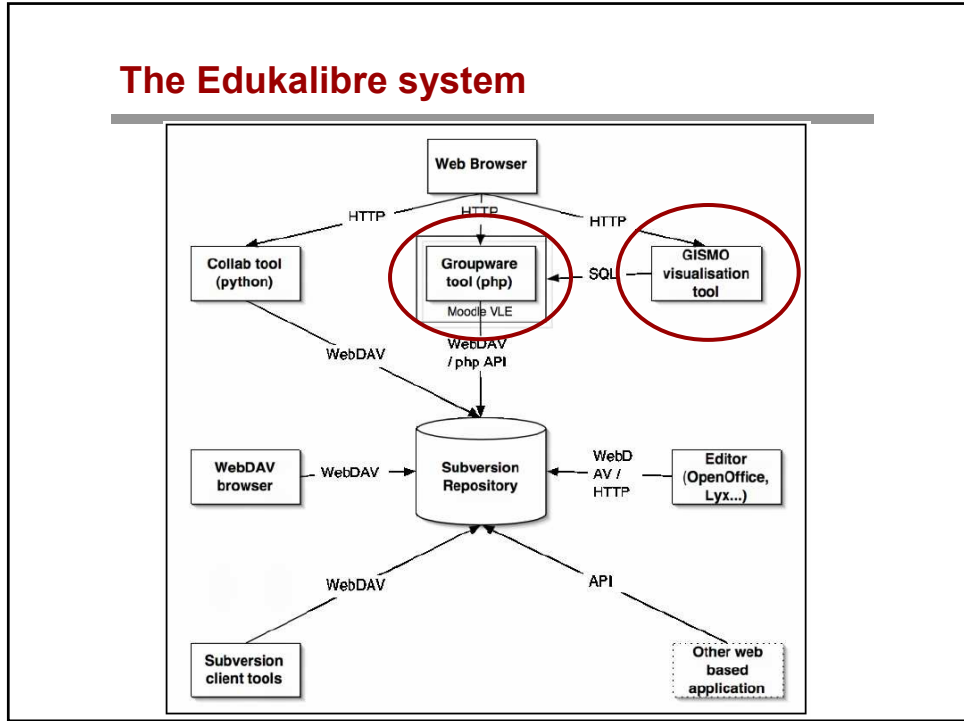
- ◆ **The libre development model radically changed the software production**
  - operating systems (Debian, FreeBSD, Fedora), desktop environments (GNOME, KDE), web browsers (Mozilla, Firefox), web servers (Apache), office suites (OpenOffice.org)
- ◆ **Availability of open source educational materials**
  - Open Learning Support (Utah), MIT OpenCourseware, Open Learning Initiative (CMU)
  - Connexions, CASCADE, WIKI
- ◆ **Can the libre development model be applied to the construction of open educational resources and what tools are needed to support users?**

## What is needed?

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- ◆ **To involve **teachers** in the collaborative construction of educational resources**
  - Different formats (e.g. Word, Latex, OpenOffice)
  - Resistant to change their working environment
  - Would not use systems that are not intuitive and easy to use
- ◆ **To involve **students** in the collaborative construction of educational resources**
  - Linked with learning objectives
  - Seamlessly integrated in their learning activities
  - Motivational factors
- ◆ **Tools used in libre development are not suitable**
  - Not intuitive
  - Require good technical skills
  - Edukalibre develops an **intuitive and truly open system**

## The Edukalibre system



## CONDOR: Construction of Dynamic Open Resources

Groupware demo course  
 groupware - GW101 - Groupware - test\_browser

Home Messages Discussions Resources

My Resources | Repository browser | Upload a new file here | Create a new folder here

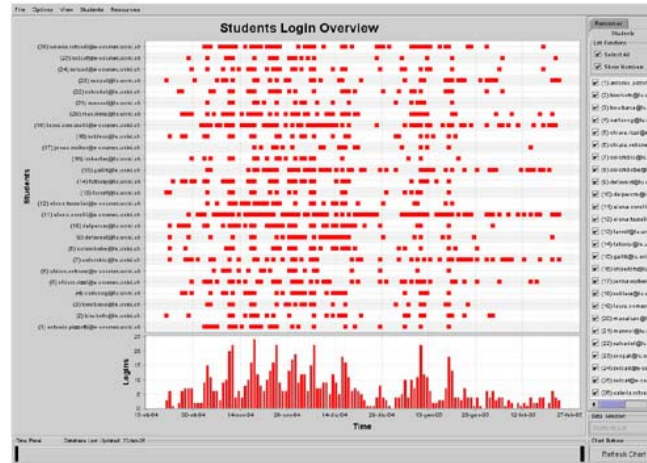
Resources for "test\_browser"

You are in folder : Home -> Collaborative\_activity\_0 ->

Name	Author	View history	Add to My Resources	Upload a new version	List source files	Delete
CalendarTesting.pdf	chrtzpy	View history	N/A	Upload	N/A	Delete
Collab_document	chrtzpy	N/A	N/A	N/A	N/A	Delete
notes.testing.sxw(Openoffice)	chrtzpy	View history	Add to My Resources	Upload	List source files	Delete
usability_form_DFR.xls	chrtzpy	View history	N/A	Upload	N/A	Delete

Integrated in MOODLE (<http://moodle.org/>)

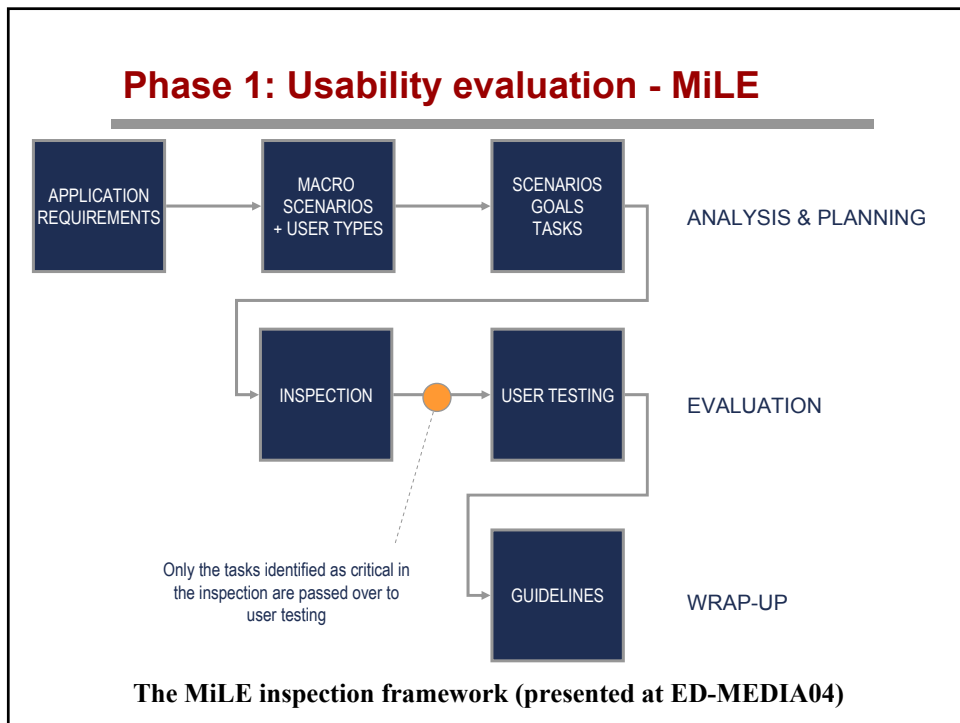
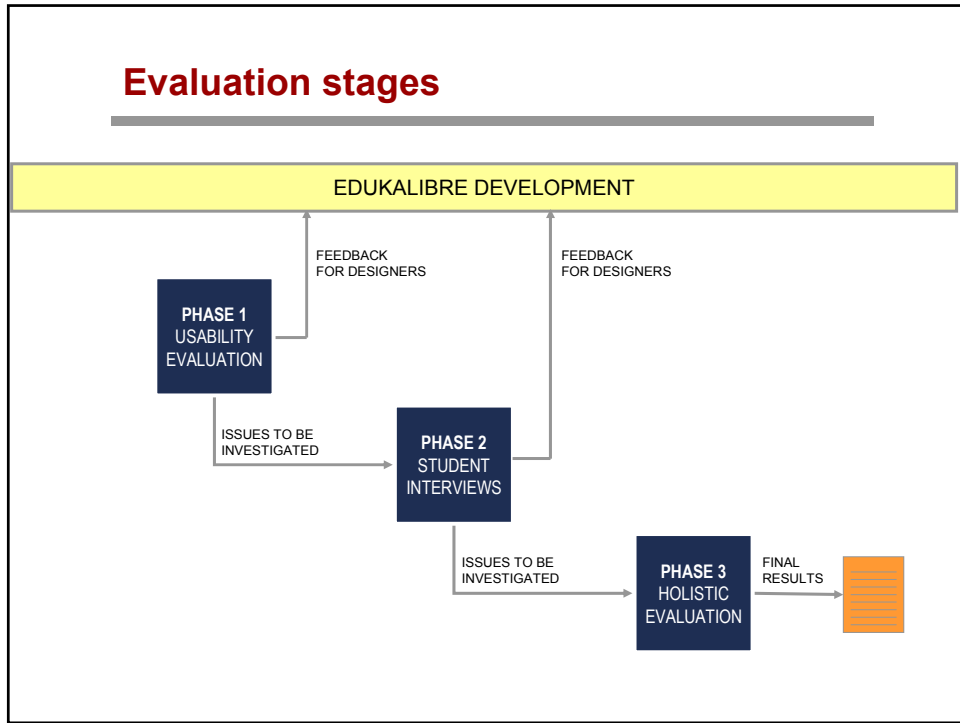
## GISMO: Graphical Interactive Students Monitoring



Also integrated in MOODLE

## Challenges to the Edukalibre evaluation

- ◆ **Highly iterative development**
  - Frequent releases of software, sometimes not fully tested
- ◆ **Geographically dispersed development and evaluation teams**
  - Lack of synchronisation, difficult to communicate
- ◆ **Asynchronous development with several teams working independently**
  - Flexible evaluation of the whole system needed
- ◆ **Dynamic links between design, development, and evaluation**
  - Design decisions had to be quickly validated
  - Developers needed short term input and guidance
  - Evaluation had to be conducted in real settings



**The MiLE inspection framework (presented at ED-MEDIA04)**

## MILE scenario example

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### Inspection criteria

*Content, Orientation, Navigation, Predictability, Layout, Legibility and Graphics*

### 9 inspectors

*6 teacher scenarios, 3 student scenarios*

#### SCENARIO TEACHER 01 – Creating a Collaborative Activity

The teacher has prepared a description of a collaborative project that students should complete in small groups. The description is in Open Office format. She also has a text file in which she has written the groups (it's a small class of 15, and they will have 5 groups of 3 members each). Finally, she has prepared a first document from which the groups will start working.

The rest of the course is already uploaded in Moodle – it's a course organized in weeks in which she has already uploaded some materials and started a forum. She has already created groups and now wants to create the environment in which the students will work. She will then show to the students how to use the environment online in the class.

- Task 01: Create a new collaborative environment linked to week 5
- Task 02: Upload a calendar for the activity as a PDF file
- Task 03: Insert the project description
- Task 04: Insert notes about the evaluation of the process
- Task 05: Upload the starting document so that is available to all groups

## Phase 1: Usability evaluation – cognitive walkthrough

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- ◆ Part of a course on Human-Computer Interaction
- ◆ Group inspection (about 20 students)
- ◆ Inspectors were potential users
- ◆ Focused on interface and functionality problems

## **Phase 1: Usability evaluation – RESULTS**

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### **◆ Interface confusing at times**

- Poorly structured menus in GISMO
- Mixing tasks in ConDOR

### **◆ Missing functionality in ConDOR**

- Cannot track the contribution of a person
- Cannot track a person's contribution to discussions
- Cannot organise discussions around a document

### **◆ Limitations**

- Missing real users' feedback
- Not in real settings

## **Phase 2: Evaluation with users**

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### **◆ Seminar at the University of Karlsruhe**

- Environmental business game
- 14 students working in 4 groups
- 2 teachers

### **◆ Four months**

### **◆ The course was done in MOODLE**

- ConDOR used by the students as a groupware tool
- GISMO used by the teachers to monitor student activities

## **Phase 2: Results**

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### **◆ Student feedback about ConDOR:**

- The system was unstable
- Discussion forum in MOODLE preferred
- ConDOR used for resource sharing mainly
- Confusion between repository and my resources
- Most students used MS Word, so version control not checked

### **◆ Was this the right setting**

- The students worked in small groups
- They had regular face-to-face meeting

### **◆ What was the developers' perception of users' tasks?**

## **Phase 3: Matching the expectations of developers and users**

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- ◆ **Conflicts between the assumptions of the developers and the needs of the users are at the heart of usability problems**
- ◆ **Different groups perceive a system differently**
- ◆ **The needs of users may have not been adequately researched**
- ◆ **Task-driven evaluations are limited to assumptions of the designers and may not discover creative or unexpected use of systems**

### Phase 3: Results

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- ◆ **Success is measured by achieving project goals and fulfilling the set tasks - if we manage to deploy Edukalibre in real courses.**
  - Involve learners constructively;
  - Good popularity among instructors;
  - Add new benefits not given by face-to-face modality;
  - At least 20 courses with materials collaboratively produced with this tool.
  
- ◆ **Usability:**
  - Easy to use, simple to explain to the students, answering a direct need, stable and having support.

### Current work

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- ◆ **Phase 3 ongoing**
  - How do the assumptions change over time;
  - Consider the expectations of all stakeholders
  
  - An e-learning project will not succeed if it does not consider the organisational factors
  
- ◆ **Other user studies**
  - Karlsruhe (similar settings, software stable now)
  - Leeds (2 courses, students constructing educational resources, results positive)
  - Madrid (using the COLLAB tool in a postgraduate seminar, results very encouraging)
  - We use Edukalibre for collaborative writing and sharing or resources among partners.

## Summary

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- ◆ **Libre development model in education**
  - Involving students and teachers
  - Edukalibre is proof of concept
  - It looks a promising approach
  
- ◆ **Evaluation of systems like Edukalibre**
  - Specific challenges because of the libre nature of the project
  - Traditional challenges for good evaluation
  - Evaluation conducted in several phase
  - Usability inspection, user studies, matching expectations – all seem important!
  
- ◆ **We hope to be able to move Edukalibre to a next stage targeting a wide deployment.**