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A USABILITY EVALUATION APPROACH IN E-LEARNING ENVIRONMENTS:

THE CASE OF IBM LOTUS QUICKR

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The Hellenic Open University

HOU in numbers:

- ~ 30.000 Students
- ~ 18.000 Graduates
- 32 courses
- ~ 250 modules
- 45 Faculty Members

The Software Quality Research Group

SQRG:

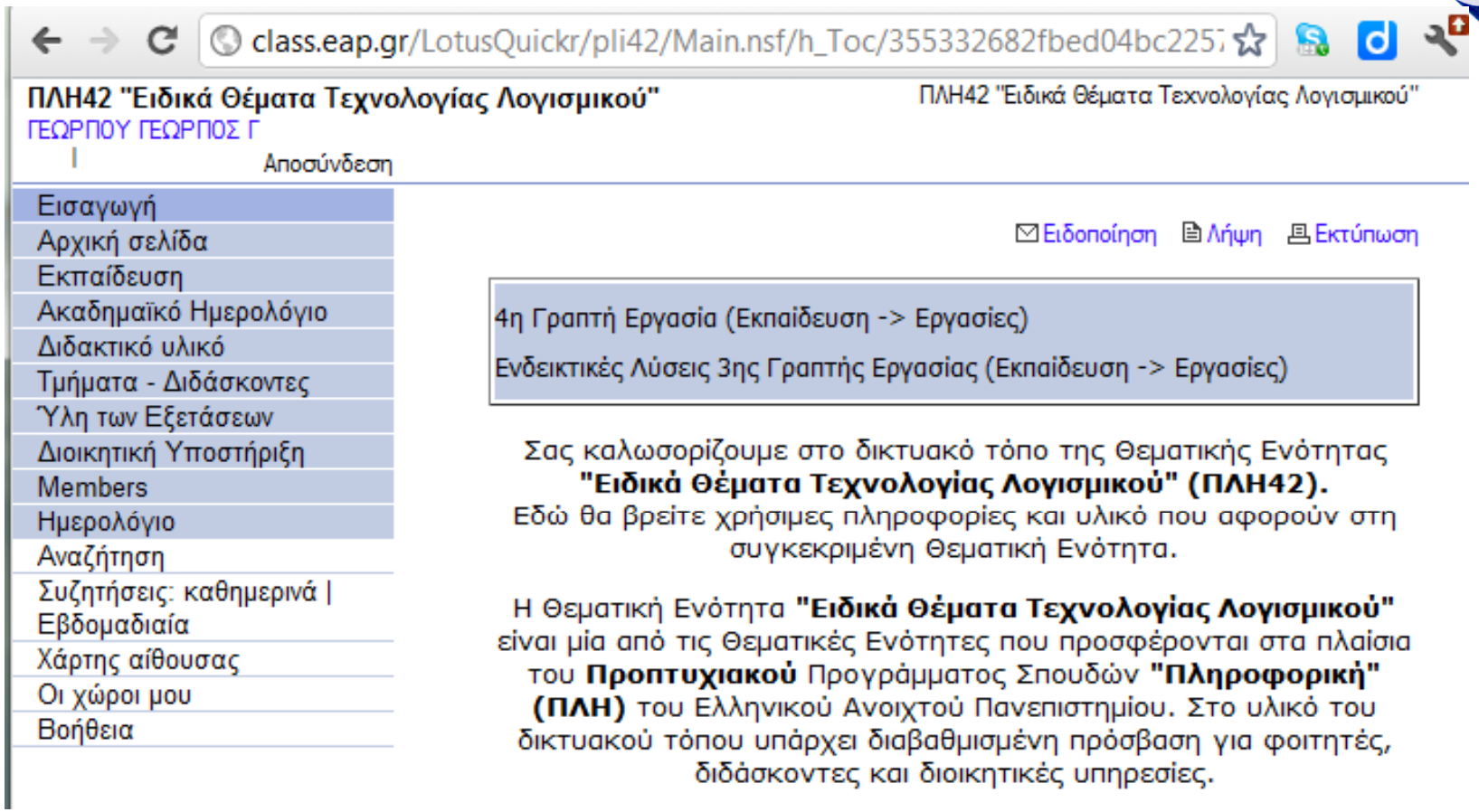
- 8 Ph.D. Researchers
- 5 Ph.D. Candidates
- Students

quality.eap.gr

Research on:

- Quality Assessment on Educational Tools, Systems and Methods
- Usability Evaluation
- HCI

The Environment: IBM Lotus Quickr



An IBM product.

Used by Hellenic Open University since 2004

http://class.eap.gr/

230 instances, one for each module

THE ENVIRONMENT: IBM LOTUS QUICKR

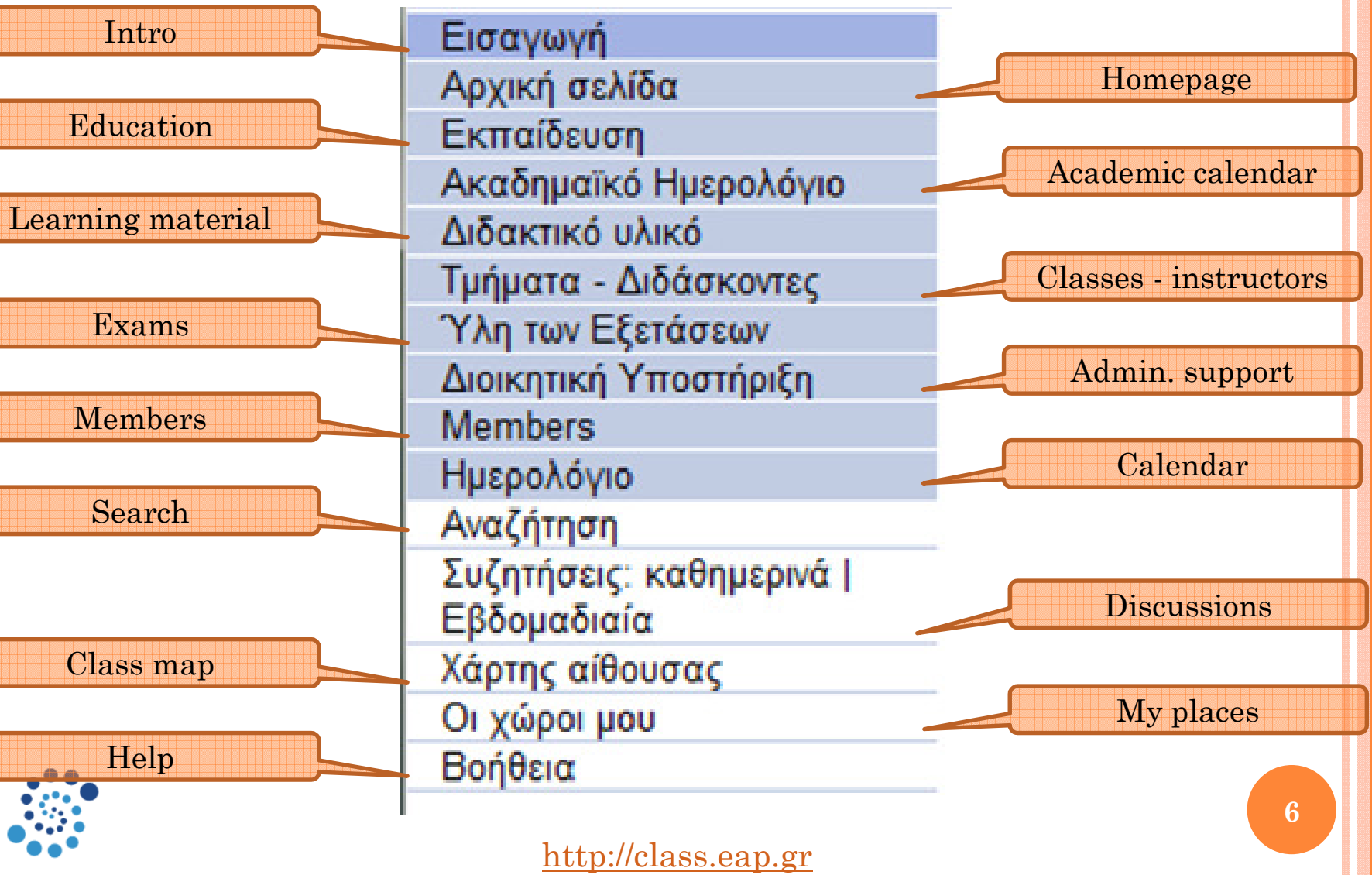
Users:

- Students and instructors of HOU
  - In this test case: students of undergraduate course "PLH42"

Objectives:

- Learning material management
- Organisation issues (exams, assignments, announcements etc)
- Communication issues (discussion with co-students and instructors)

THE ENVIRONMENT: IBM LOTUS QUICKR



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USABILITY: THE DEFINITION

"The extend to which a product can be used by specified users to achieve specific goals with effectiveness, efficiency and satisfaction"

ISO 9241-11

Parameters that describe usability:

1. Easiness and speed of learning the system
2. Efficiency to use
3. Easiness to remember the system use after certain period of time
4. Reduced number of system errors and easy recover from them
5. Subjective users' satisfaction

Evaluation Procedure at a Glance

- Method: **Heuristic Evaluation**
  - "Discount" method (Nielsen, 1990) with valuable results
  - 3-5 evaluators can reveal 75% of usability issues (Nielsen, 1990)
- Evaluators: 5
  - 3 of them with >7 years experience in usability
  - 2 of them with significant in heuristic evaluation
- Non biased evaluators: No previous experience with the environment.
- A complete Scenario was given.
- Usability issues were noted down and then were corresponded to a violation of a heuristic rule(-s).
- Duration of evaluation: approx 2 hours per user.

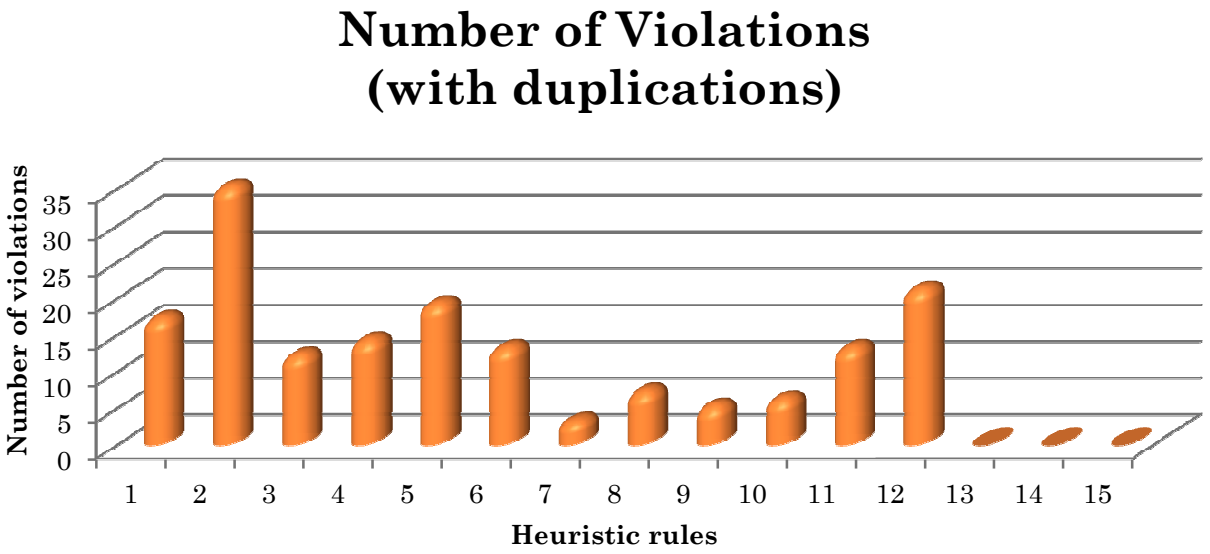
USABILITY: HEURISTIC EVALUATION

10 heuristics (by J. Nielsen) **(for Web-based User Interfaces)**	**5 additional heuristics (for e-learning environments)**
1. Visibility of system status	11. Customization of the content
2. Match between system & real world	12. Navigation
3. User control and freedom	13. Interactivity with content & peers
4. Consistency and standards	14.Tools and multimedia integration
5. Error prevention	15. Role management
6. Recognition rather than recall	
7. Flexibility and efficiency of use	
8. Aesthetic and minimalistic design	
9. Help users recognize, diagnose and recover from errors	
10. Help and documentation	

IBM Lotus QuickR: Evaluation results

Initially:

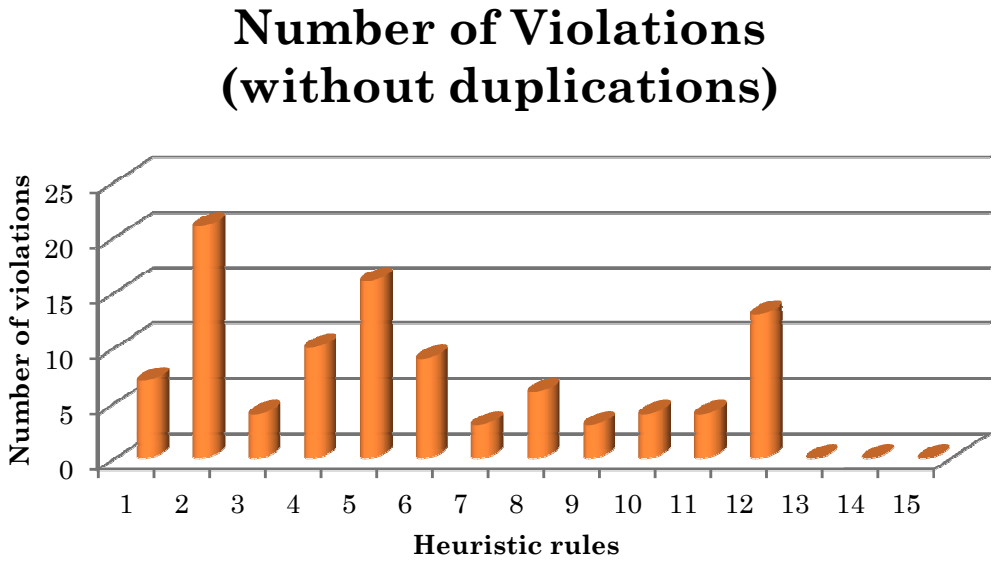
- Usability problems: 109
- Violations: 145



IBM LOTUS QUICKR: EVALUATION RESULTS

After duplication removal:

- Usability problems: 46
- Violations: 100



Heuristic rule	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Number of violations	7	21	4	10	16	9	3	6	3	4	4	13	0	0	0

IBM LOTUS QUICKR : SOME MAJOR USABILITY PROBLEMS DETECTED

1. Main menu: Invisible submenus
2. Invisible location of “Help” and poor support.
3. Lack of back button
4. Buttons like “Search” and “Logout” placed in unusual position.
5. Navigation issues: difficult to know where you are.

IBM LOTUS QUICKR : SOME MAJOR USABILITY PROBLEMS DETECTED

6. Poor communication between system and user during actions such as sending a message to other users.

7. Confusion of terms such as “Room index”, “Intro” and “Homepage”.

8. Wrong usage of terms for some actions. i.e. use of “next” instead of “save” while uploading a forum post.

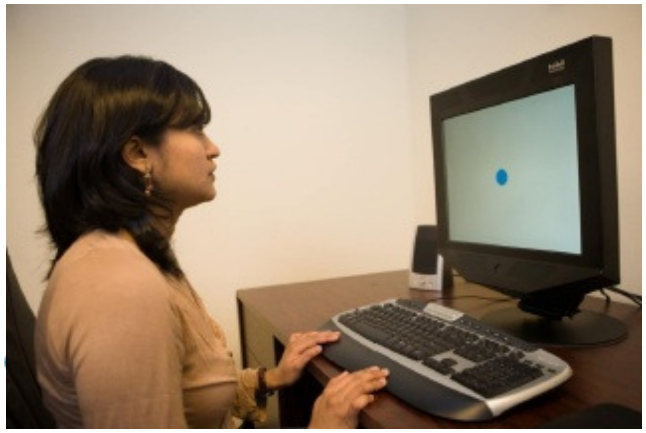
9. No data preservation in case of forms, when the evaluator pressed the “Previous” button.

10. User actions in a pop up affect the background initial window.

Future Research: With Another "Vision"

Eyetracking Usability Testing

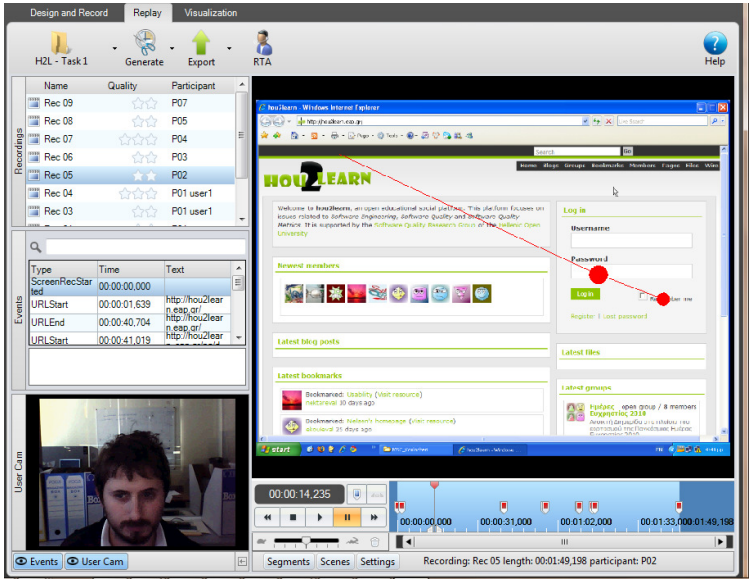
- In HOU short term plans
- Goal: To confirm the previous results with an objective usability testing (Dix et al, 2004).



Eyetracker: Tobii X120
Software: Tobii Studio V2.0.5.

Future Research: With Another "Vision"

Visualisation mean: Heatmaps



Based on Eye-Mind Hypothesis

Future Goals

Short term:

- Testing of 5 new heuristics in more e-learning environments.
- Conclusion of eyetracking evaluation

Long term:

- Combination of both methods (heuristics and eyetracking).
- Investigation of eye-tracking with pedagogical aspects.
- Comparison of results of same evaluations that conducted in other HOU environments.

Thank you.

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