AulaWeb:
a B/E-Learning platform in UPM

Raquel Martínez - Ángel García

Escuela Técnica Superior de Ingenieros Industriales
Universidad Politécnica de Madrid

Summary

1. What is AulaWeb?.

2. Pedagogical scenarios on AulaWeb

    1. B-learning: B-Learning with engineering students in Computer Science Courses

    2. E-learning: The statistical module of AulaWeb: A tool for improving e-learning quality

3. Conclusions

1. What is AulaWeb?

Student Inf

Information
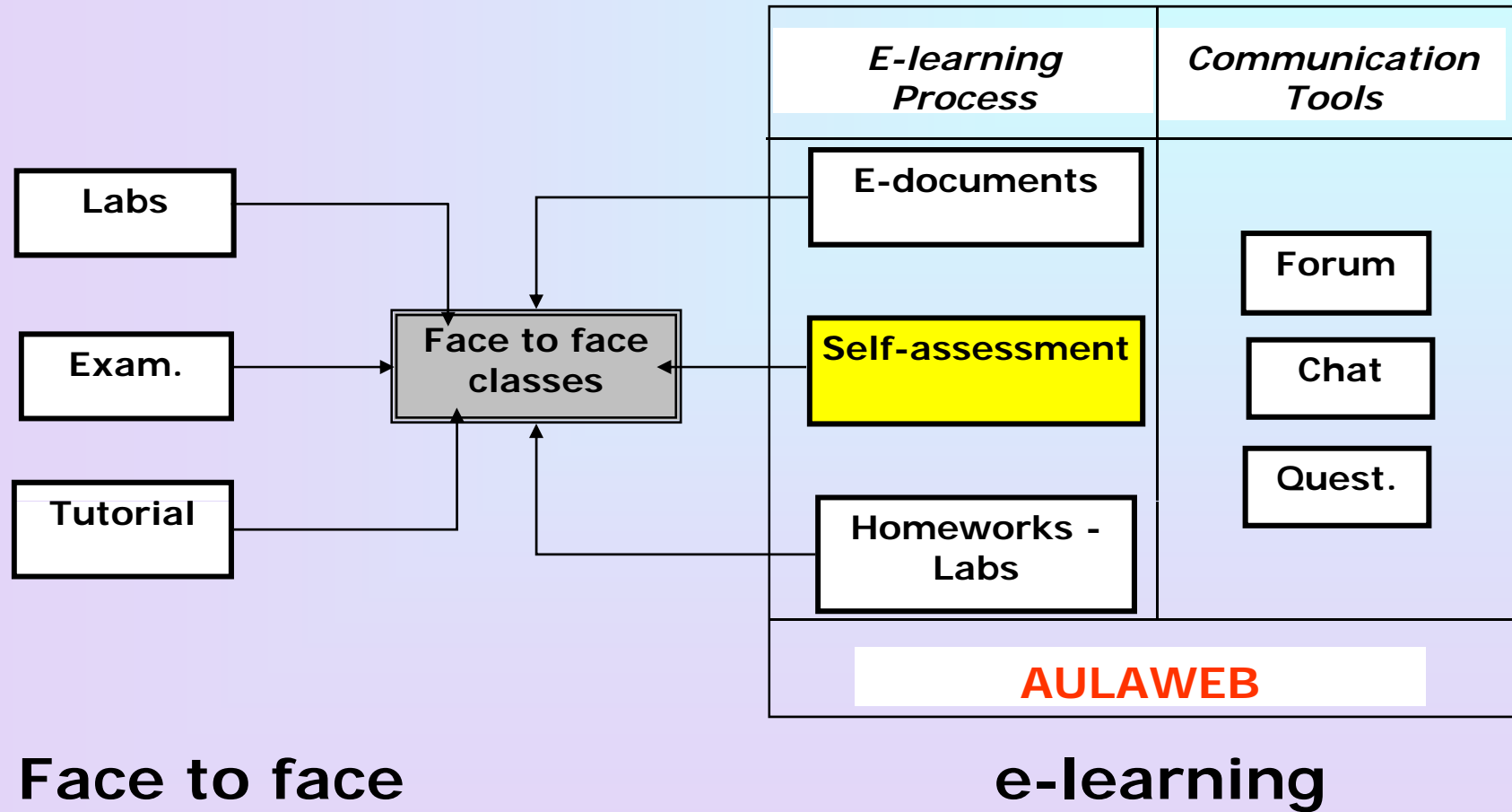
Resources

Activities

Communi cations

Exit

- WWW-based course-support system
- Valid for all kind of courses and subjects

  Specifically CS Department:

  Computer Science, Information Technologies, Java Programming, C/C++ programming, Object Oriented Programming
- Easy GUI & <u>no</u> programming required
- Essential functions for interactive teaching-learning (only) through WWW
- Password authentication & users management
- On-line graphic assistance to **publish contents**
- On-line *collect & deliver* **homeworks**
- **Self-assessment system** with test configuration including (random and/or <u>multimedia</u>) questions from the database
- Chat room and **forums**
- **Access data statistical processing**

3

2.1 Pedagogical scenario: b-learning

	E-learning Process	Communication Tools
Labs → Face to face classes	E-documents	Forum
Exam. → Face to face classes	Self-assessment	Chat
Tutorial → Face to face classes	Homeworks - Labs	Quest.
	AULAWEB	

Face to face   **e-learning**

Access to AulaWeb by CS students

Statistical Measure	Course 2004-05	Course 2005-06
Average	226,82	180,85
Median	191	155
Standard Deviation	173,71	125,10
Kurtosis	12,05	2,98
Asymmetric Coefficient	2,410	1,40
Range	1704	850
Minimum	0	0
Maximum	882	850
Sum	127705	95130
Size	563	526
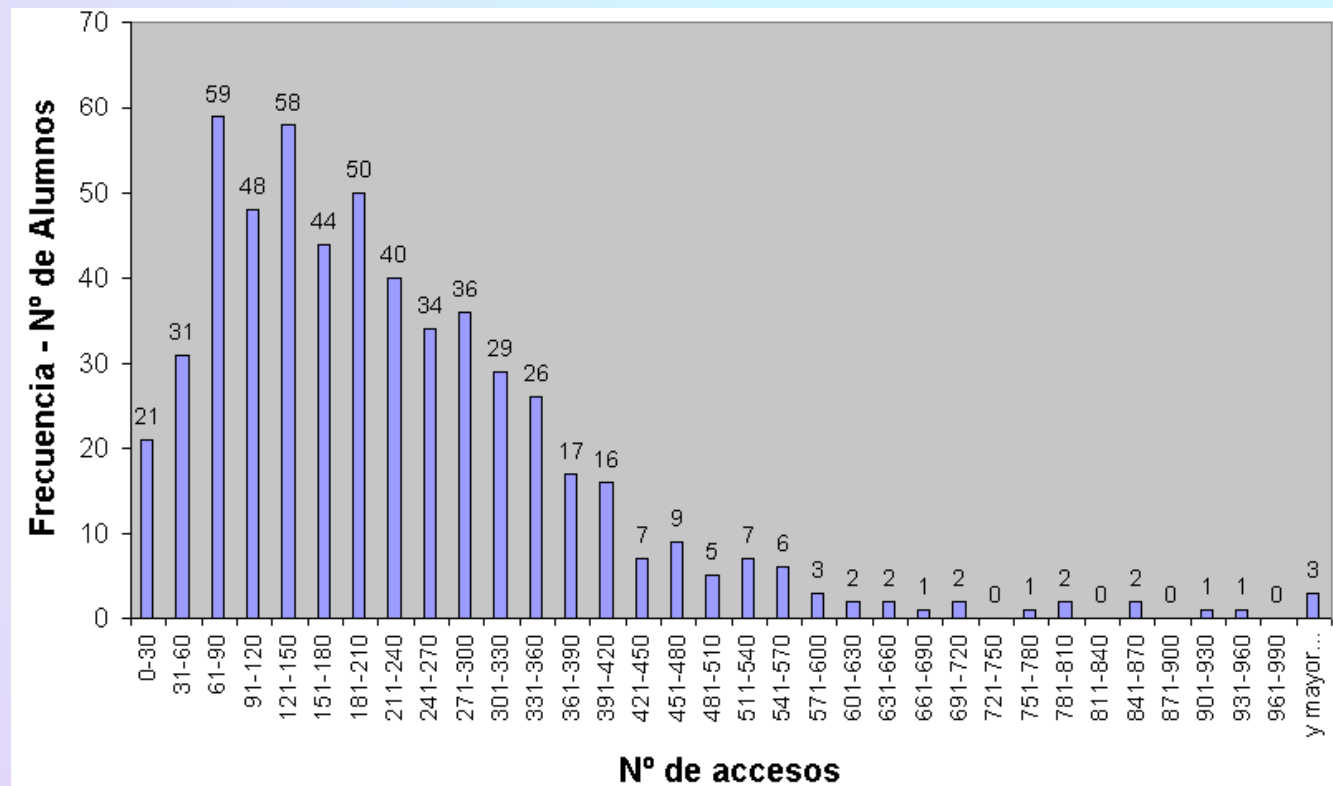
Number of access to AulaWeb by CS students during the first term (2005-06)

Self-assessment module

- 11 Chapters
- 1 self-assessment exercise per chapter
- TurboPascal code questions are a powerful tool
- In CS subject, first semester in 2005-06
  - ❖ 500 students did
  - ❖ 5851 SA exercises with
  - ❖ 58510 questions
- **We didn't correct any question !!!**

Resultados de los ejercicios de autoevaluación

Datos generales

Alumnos participantes: **500 de 526**
Ejercicios realizados: **5851**
Media de ejercicios por alumno: **11,7**

Total preguntas: 58510		
Correctas		46836 (80%)
Incorrectas		7876 (13%)
Sin responder		3798 (6%)
Índice de aciertos: **8**		
Nota media por ejercicios: **8**		

Histograma de notas	
-10-<0	0 (0%)
0 - <1	72 (1%)
1 - <2	51 (1%)
2 - <3	73 (1%)
3 - <4	108 (2%)
4 - <5	172 (3%)
5 - <6	284 (5%)
6 - <7	402 (7%)
7 - <8	628 (11%)
8 - <9	917 (16%)
9 - 10	3144 (54%)

TurboPascal Code questions

Virtual environment programming (Borland type) with a Java Applet !!!

Virtual Compile & run functions

We compare results with the correct ones

Enunciado
Completar la funcion trazas para que devuelva el valor de la **suma de los elementos de la diagonal secundaria** (traza secundaria) de una matriz NxN de valores reales dada como parámetro de la función.

```
Compilar   Ejecutar   Ayuda
[■]                         PREGUNTA-1.PAS                    1=[↕]
const N=20;
type indice=1..N;
     matrizNxN=array[indice,indice] of real;
function tr
  var aux:r
  begin
{ Escribe a
  aux:=0;
  for i:=1 t
  trazaS:=au
{ Fin de tu codigo }
  end;

8:2
```

EJECUTANDO...

OK: Programa ejecutado
La funcionalidad parece correcta

An on-line compiler is needed for processing this type of questions

Campo de código a rellenar (1 de 1)

Self-assessment methodology
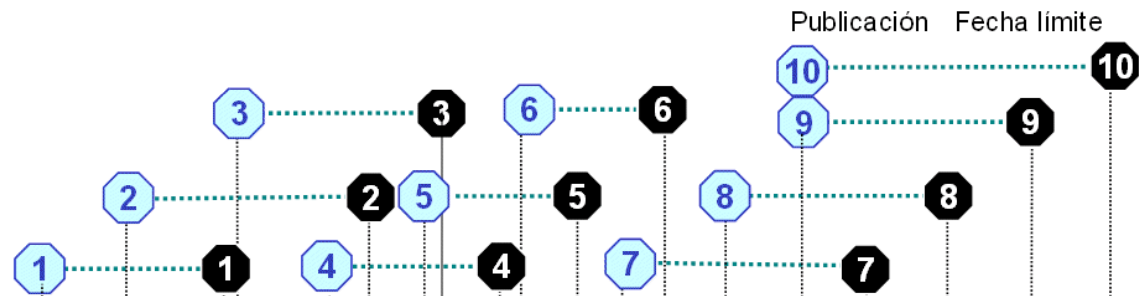
- Questions have appeared on previous exams
- Contribution to the subject grading
- Turbo pascal, C, Java questions
- A fixed deadline for every exercise
- Deadline every week
- Two weeks for delivering every exercise
- 10 questions in every exercise
- Students can repeat a exercise
- They can increase their average mark
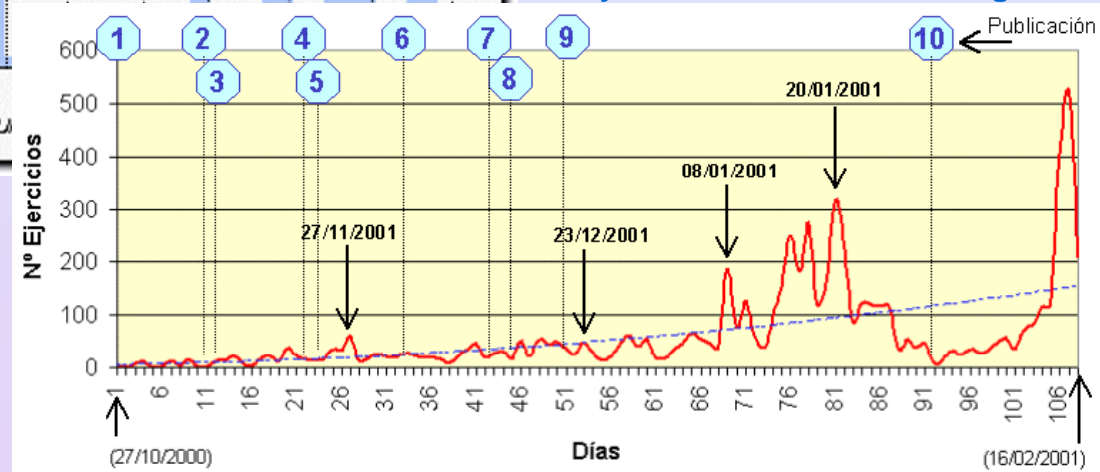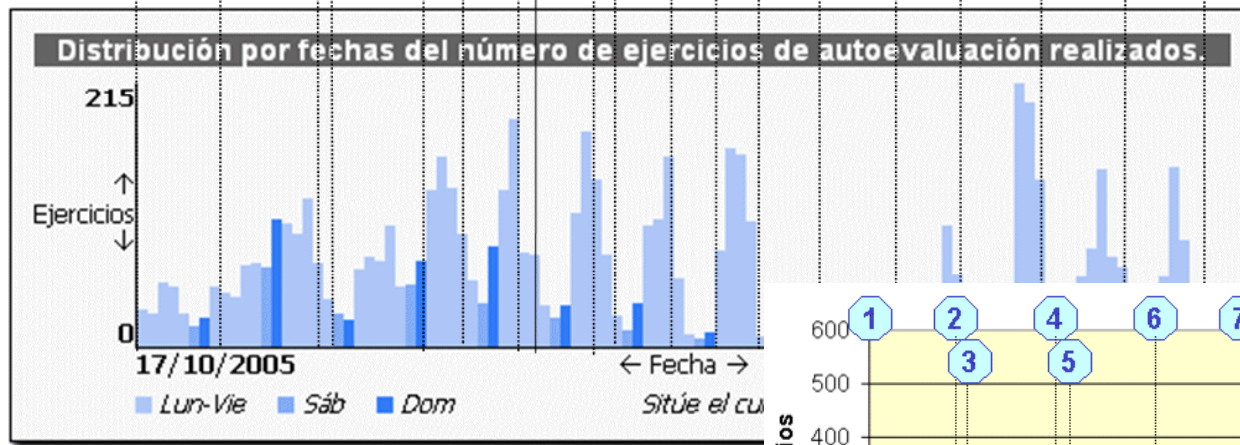
Self-assessment improves results?
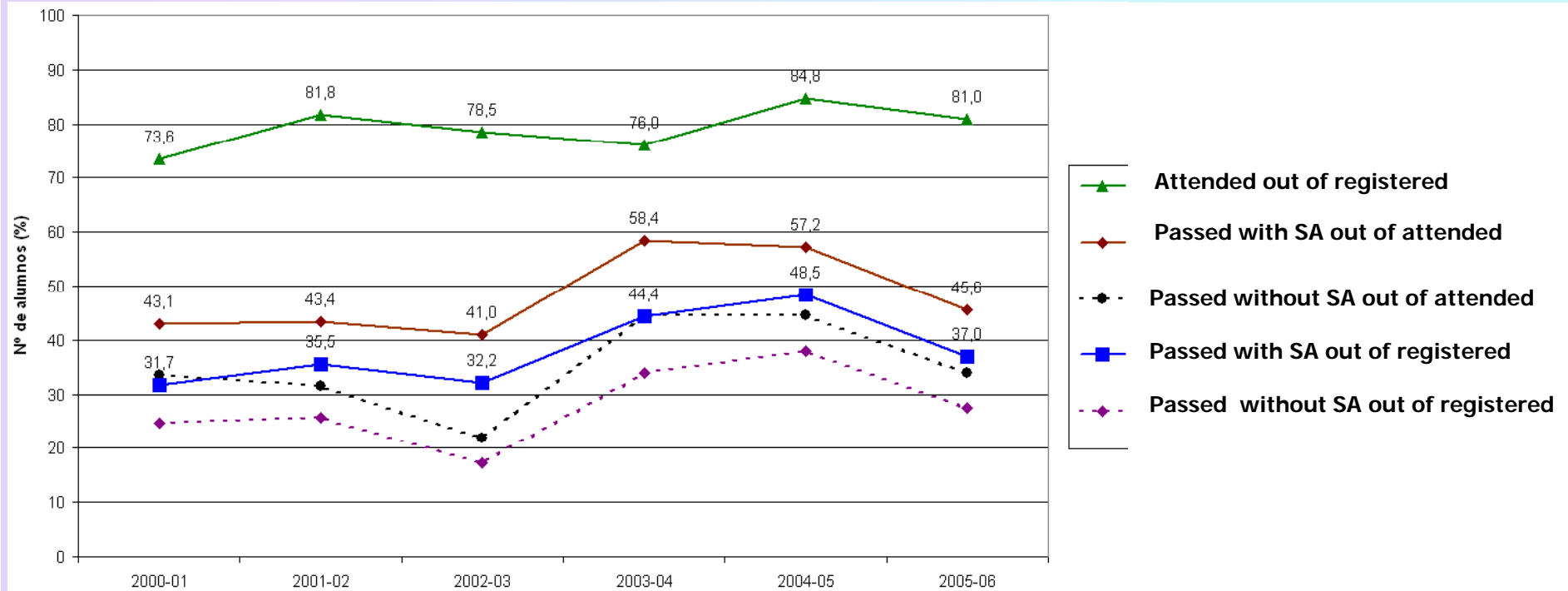
Effects of self-assessment on the number of successful results on CS topic during the last six years

E-learning Process	Communication Tools
Asynchronous classes	**Forum**
E-documents	**Chat**
Self-assessment	**Quest.**
Homeworks - Labs	

E-Tutor

E-mail

AULAWEB
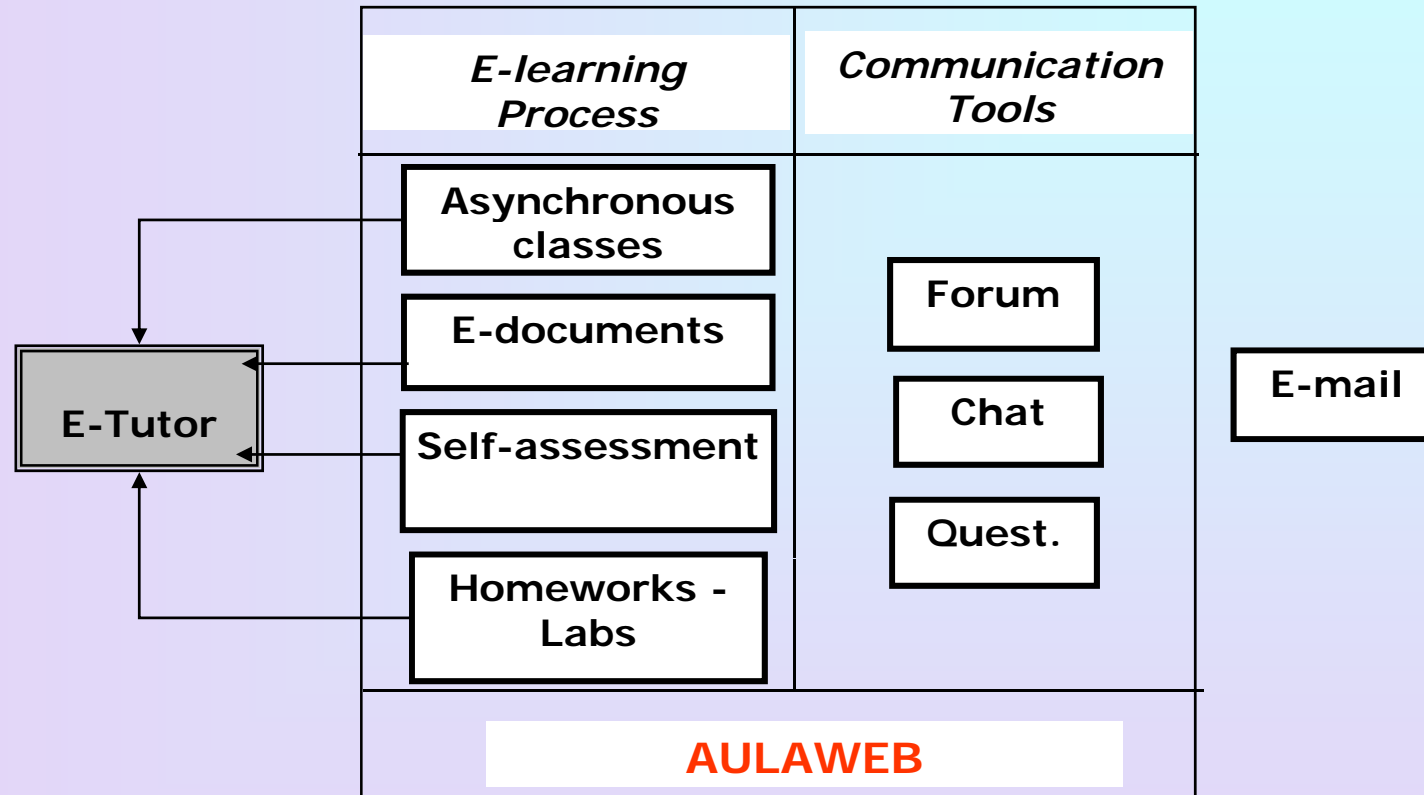
e-learning

Information Technologies and Java Programming modules

The IT and JP activities

❖ **Review a lesson per week in the Curso online section asynchronous classes**

❖ **Read e-documents**

❖ **Do a self-assessment exercise every one or two weeks**

❖ **Do homework every two or four weeks**

❖ **Participate on optional chat every week**

❖ **Participate on obligatory chat some week (4)**

❖ **A final collaborative work on groups**

The minimum requirements in e-learning

IT and JP Documentation published on AulaWeb:

30 html documents including 164 jpg images for every *Curso on-line in SCORM format*

We need to know:

- **If all the nodes are visited**
- **When a node is visited**
- **Who has abandoned the course**
- **Who hasn't visited a node**
- **The course tracking of a student**
- **Compare a student with the average**

Statistical Module GUI professor

Parameters of Statistical Module

Information type

- ● Number of visits
- ○ Visit date
- ○ Duration of visits

☐ **Accumulative**

Different information types

Students

- ● All the students
- ○ One student
- ○ One student and the average

Seleccione un alumno ▾

Several levels of clustering and detail

Period

- ● **Complete academic course**
- ○ Mes del curso: Abril-2006 ▾
- ○ Intervalo: Inicio...... ☐ / ☐ / ☐
  Fin......... ☐ / ☐ / ☐

Date interval

Clustering/Graphic type

Seleccione una agrupación ▾
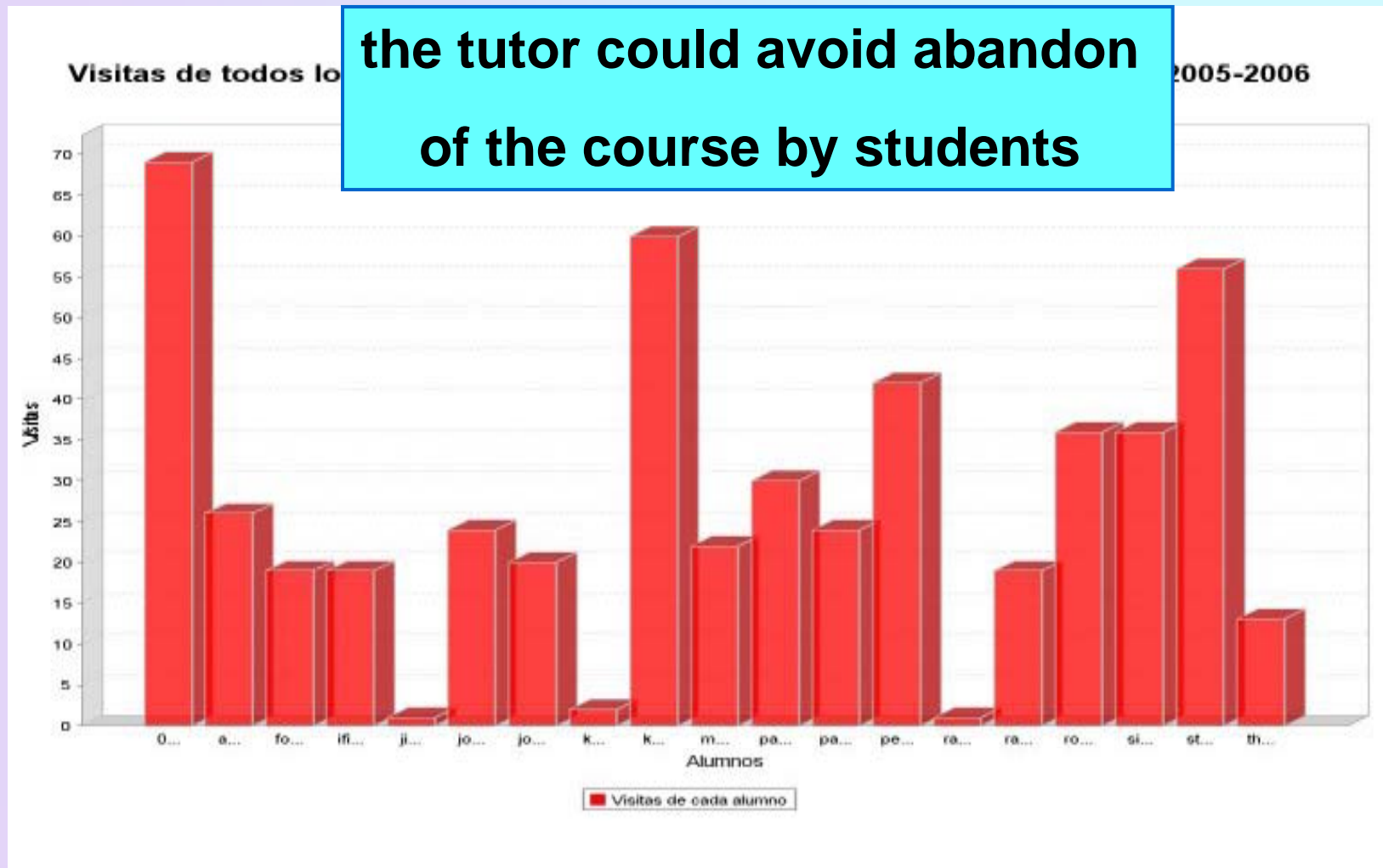
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Mostrar   Restablecer

Different criteria of grouping data. Three types of graphics

Bar Diagram

Number of hits of all students during the whole course

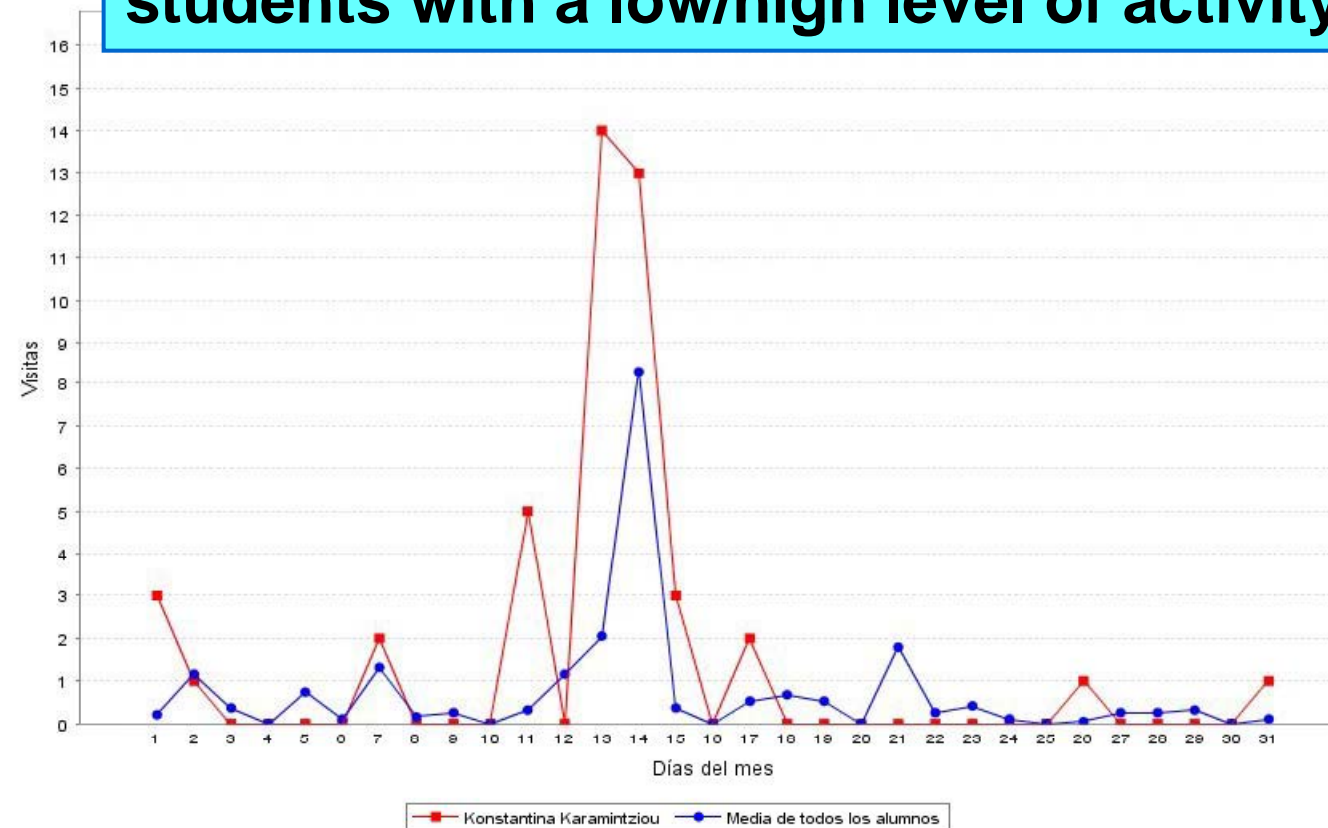the tutor could avoid abandon
of the course by students

Line diagram

Number of visits of a student vs the average

the tutor can identify

students with a low/high level of activity

Number of hits of all students during the whole course grouping by time slots in a day

Visitas de todos los alumnos al **CURSO COMPLETO** durante todo el curso 2005-2006

Distribución de visitas por franjas horarias. Visitas totales: 354

The tutor can establish the schedule

of synchronous activities

Franjas horarias

■ Visitas de todos los alumnos
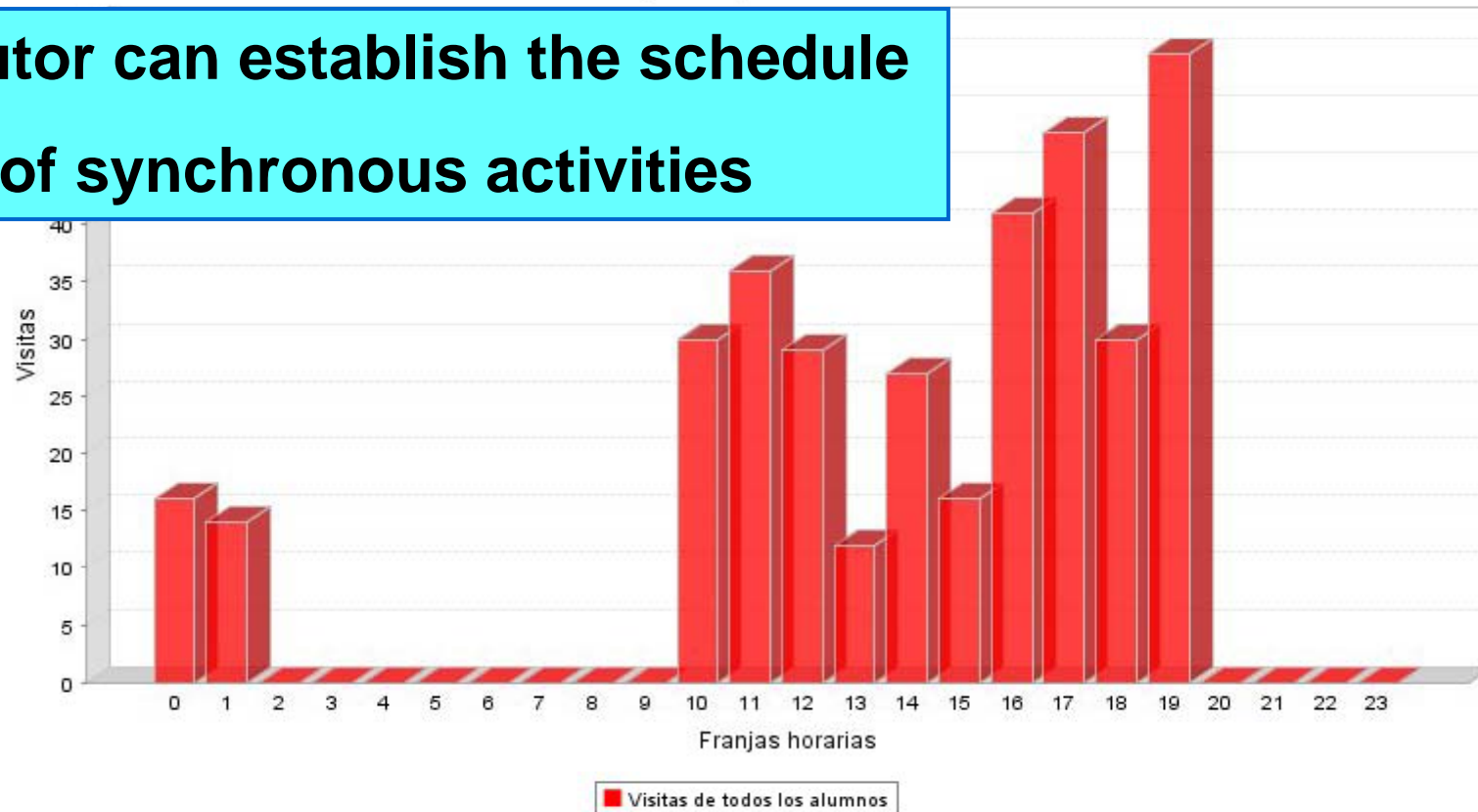
3. Conclusions

- Academic staff acceptance of e-learning platforms is positive
- AulaWeb is used on b-learning as a tool to publish e-contents, to collect&deliver homeworks, to do self-assessment evaluation
- Self-assessment module helps students to realize progressively his level of knowledge
- Self-assessment module allows the teacher to track the students' progress during the course

- Statistical Module in AulaWeb together with e-content in Scorm format of *Curso online* improves the performance of online courses
- SM allows to know the real use of the platform by students.
- SM helps to analyse the use of a specific resource or activity.
- SM focus on the improvement of the course contents on a more efficient way
- SM allows to know the student connection habits to improve them.
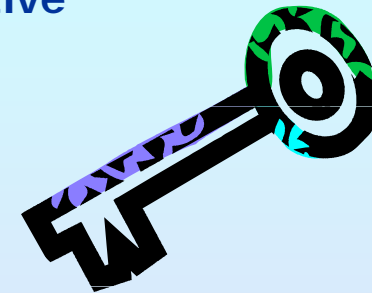
Questions?

- Contact

Raquel Martinez

Computer Science Department - Universidad Politécnica de Madrid

E-mail: raquelm@etsii.upm.es