ISE

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Interactive Multimedia based Teaching in a Notebook University Environment

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UbiCampus

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UbiCampus Hannover - Overview

- **Project supported by BMBF (German Ministry for Education and Research)**
  - **Budget for “Notebook Universities in Germany” approx. 25 Mio. Euro**
  - **Budget for “UbiCampus” = Notebook University Hannover: approx. 1 Million Euro**
  - **Cooperation: UH and MHH**
  - **Management: SRA University of Hannover**
  - **Funding period: July 2002 – December 2003**

UbiCampus Hannover - Overview

- **Notebook University**
  - **New form of academic organization**
  - **Extensive usage of mobile devices and wireless networks**
- **Objectives:**
  - **New didactical concepts for on-campus teaching**
  - **Multimedia and mobile tools.**
  - **> Replace “Paper and Pencil” by Notebook**

UbiCampus Hannover – Other Scenarios

- **The Group-Selective Lecture**
  - **One course (physics) for students with different academic backgrounds**
- **Notebook Seminar**
  - **An action-based self-learning approach in small groups**
- **The Mobile-Project Group**
  - **Pair programming of complex applications**

Social Skills

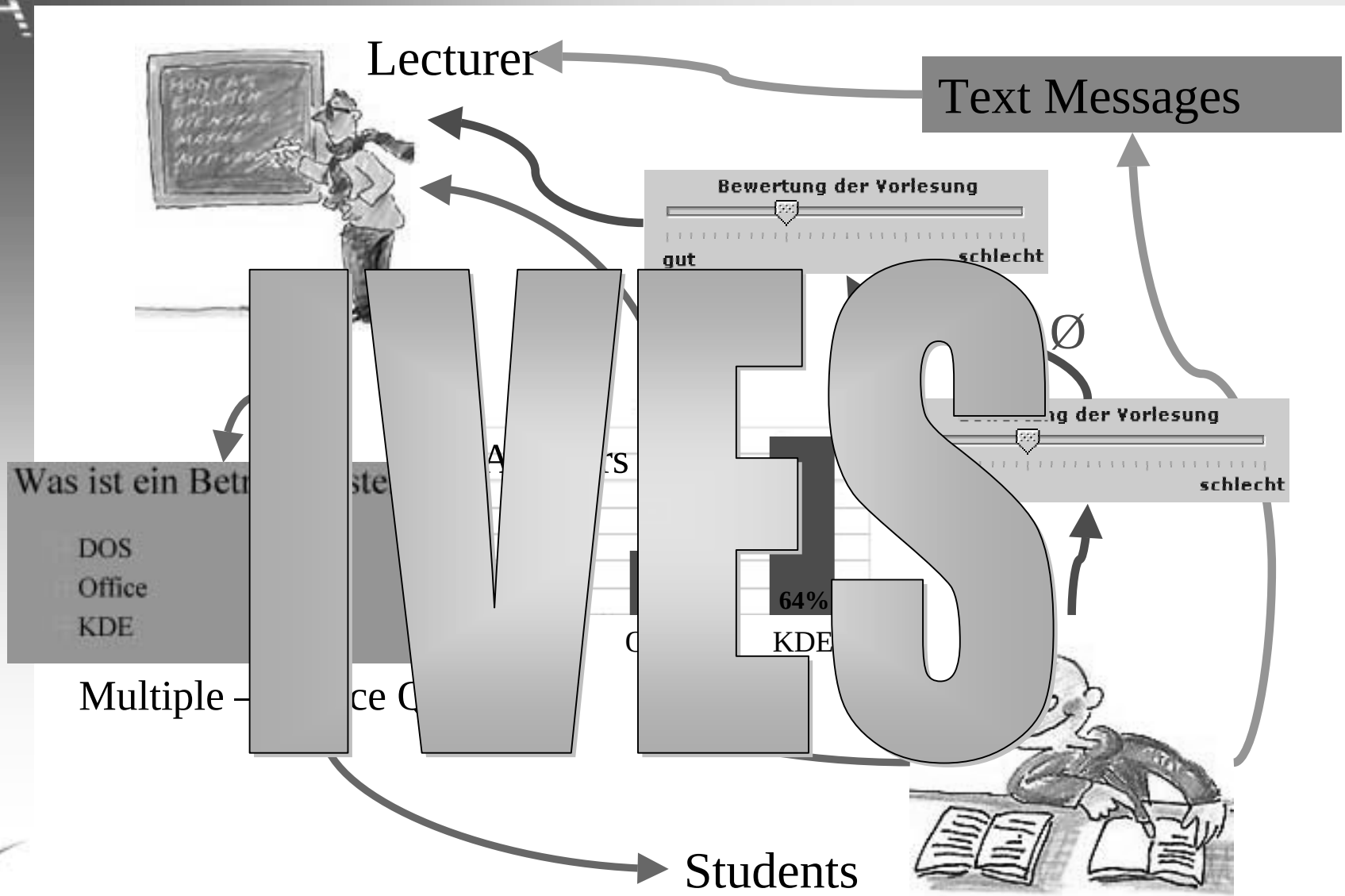
The Interactive Lecture - Objectives

- **Enhancement of the classroom teaching with new tools**
  - **Students with wirelessly-connected notebooks**
  - **Multimedia courseware for lecture and exercises**
  - **Interactivity through**
    - **Online quizzes**
    - **Anonymous electronic messages**
    - **Lecture rating by students**
  - **Hands-on online practice**

The Interactive Lecture - Evaluation

- **Evaluation of the tools**
  - **Frequent opinion polls to the students**
  - **Analysis of exam results**
  - **Comparison between users with / without notebooks**

The Interactive Lecture



Technologies - Interactivity through IVES

- **Interaktives VorlesungsEvaluierungsSystem (Interactive Lecture Evaluation System)**

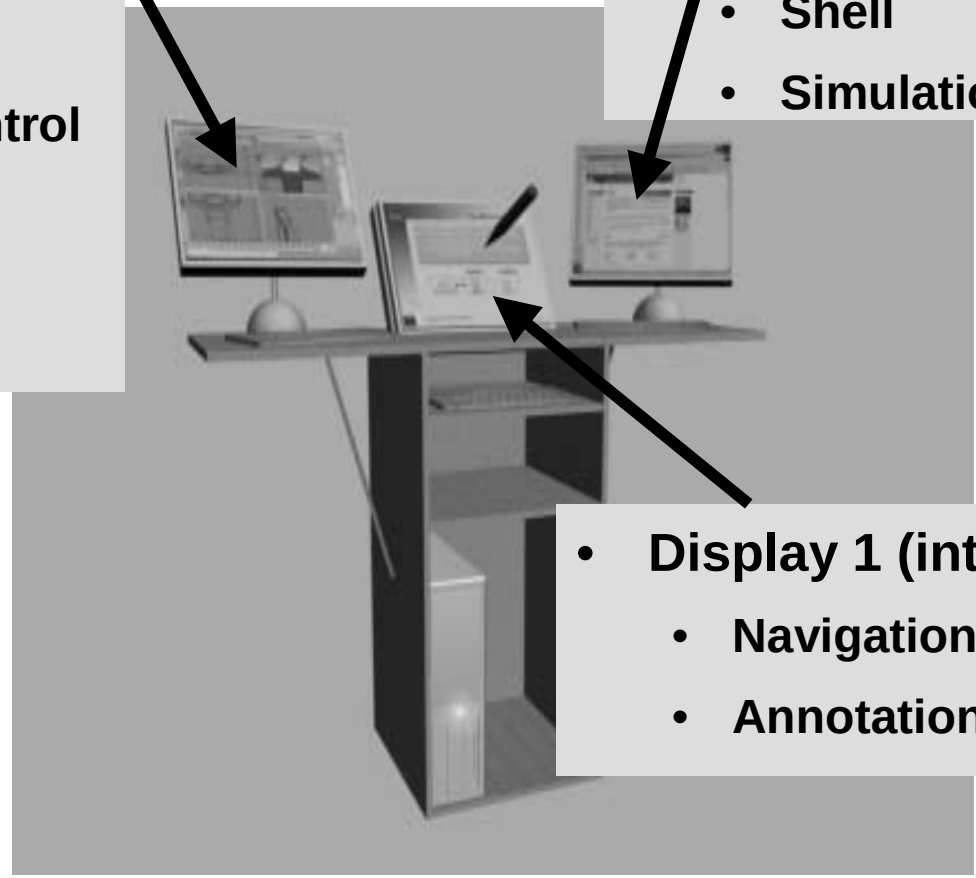
- **IVES handles**
  - **Distribution of course material (ftp)**
  - **Creation, distribution, answering and evaluation of quizzes (based on multiple-choice questions)**
  - **Feedback from the students**

- **IVES is based on**
  - **Servlets and HTML (Apache Tomcat)**
  - **Applets**
  - **Database (MySQL)**

Technologies – Lecturer‘s MM Desk

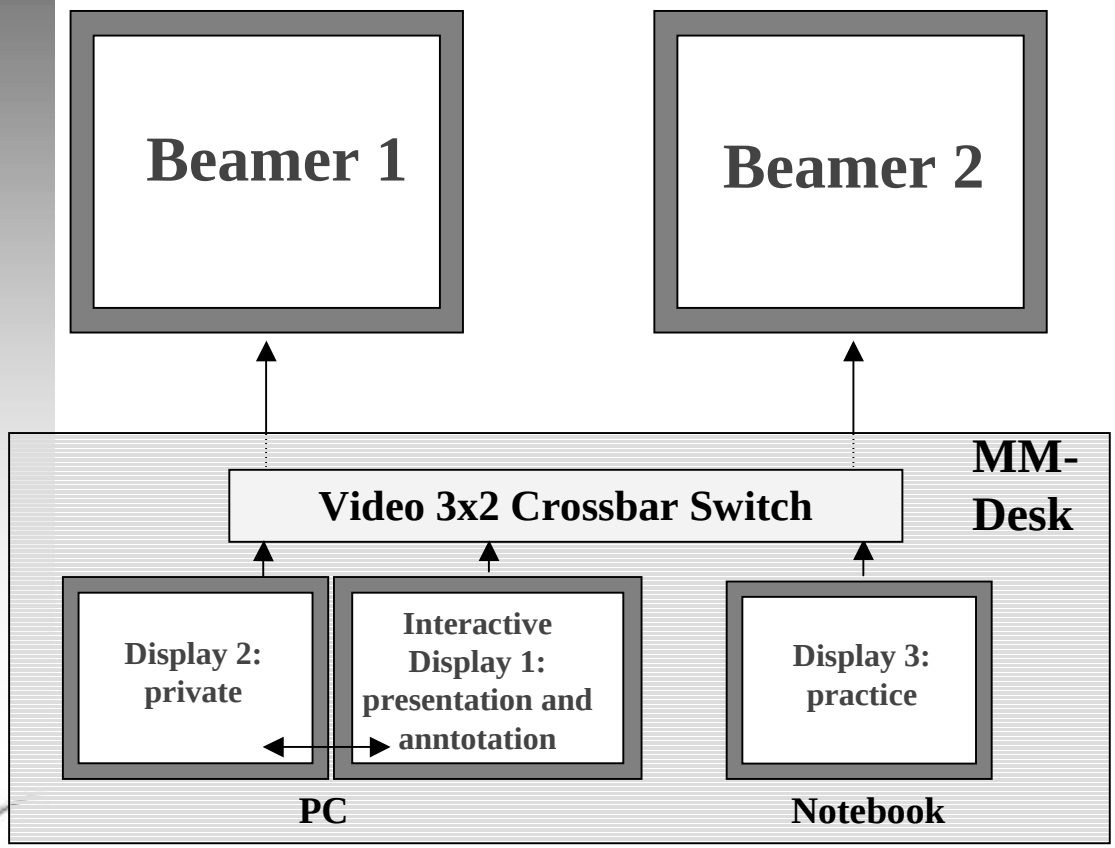
- **Display 2 (private)**
  - **Feedback**
  - **Quizzes control publish & evaluate**
  - **Messages**

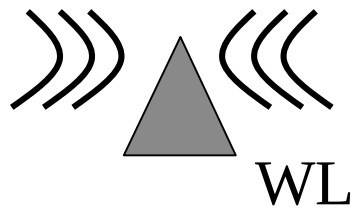
- **Display 3 (practice)**
  - **Shell**
  - **Simulations**



- **Display 1 (interactive)**
  - **Navigation**
  - **Annotations**

Technologies – Classroom





The Interactive Lecture - Lecturer

- **Presentation**
  - **Lecture with beamed courseware**
- **Lecture slides**
  - **Distributed before and after the lecture**
- **Lecturer annotations**
  - **Made by the lecturer on the Smart display and**
  - **Distributed to the students**
- **Test quizzes**
  - **Consisting (mainly) of multiple-choice questions**
  - **Automatically and statistically evaluated**
- **Feedback from students**
  - **Ratings of the lecture from students**
  - **Quiet messages from students, to avoid loud embarrassing questions**
- **Online and permanent UNIX shell-access**

Technologies - Annotations Example

M3 Maskierung (Quoting) (1)

- Zeichen mit Sonderbedeutung für die Shell:

  > < ; & ( ) | \ <CR> $

  müssen maskiert werden, wenn sie in einem String vorkommen. Ihre Sonderbedeutung muß also unterbunden werden.

- 3 Methoden

  \ maskiert das folgende Einzelzeichen

  ´.....´ maskiert alle eingeschlossenen Zeichen (außer ´)

  "....." maskiert alle eingeschlossenen Zeichen (außer $ \ ´)

- Beispiel 1

  Leerzeichen

```
$ a=cd\ /usr/mike/ftn
$ b=´cd /usr/mike/ftn´
$ c="cd /usr/mike/ftn"
```

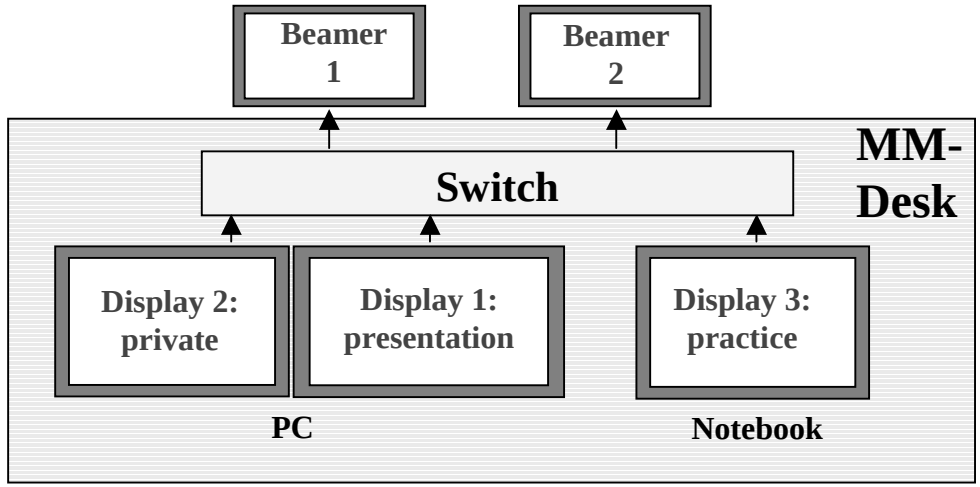
Annotations

18 Vorlesung Betriebssysteme Arbeiten mit der Shell

The Interactive Lecture - Student

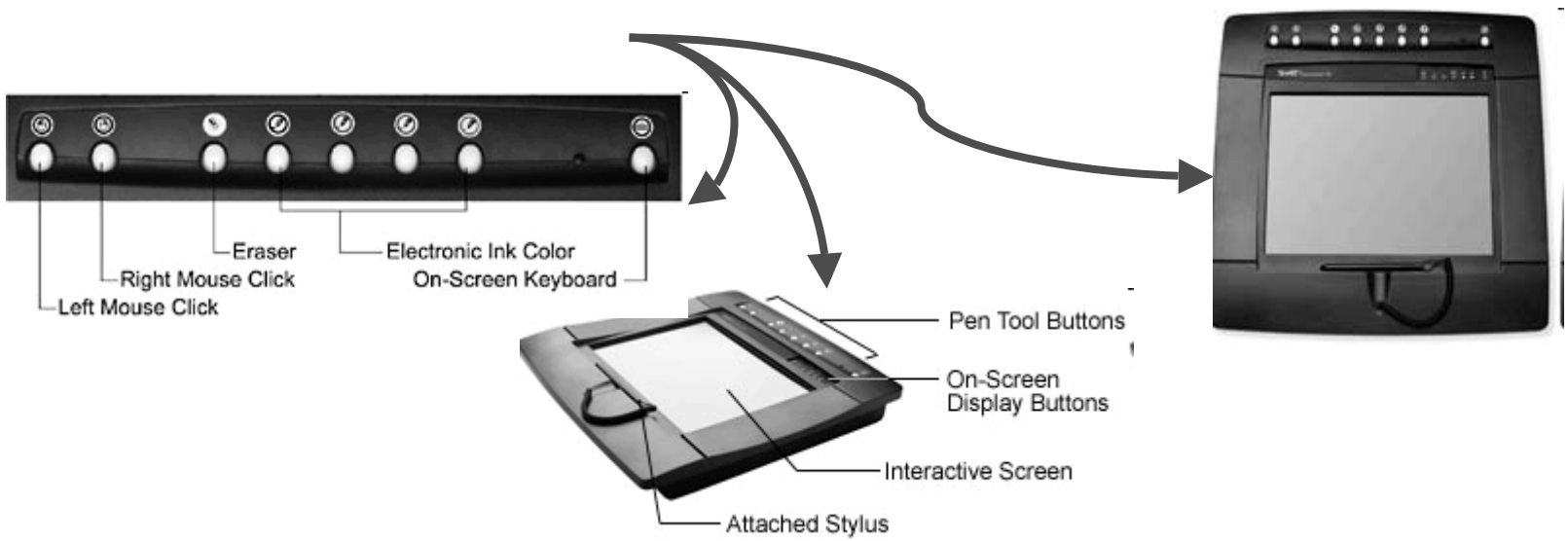
- **Lecture slides**
  - **Downloaded before and after the lecture**
- **Student annotations**
  - **Made in parallel during the lecture**
  - **Merged after lecture with those from lecturer**
- **Online and permanent UNIX shell-access**
- **Test quizzes**
  - **Answering to (mainly) multiple-choice questions**
- **Feedback to the professor**
  - **Lecture rating**
  - **Quiet messages**

Technologies – Lecturer‘s MM Desk



Technologies – SMART (Interactive Display)

Smart Sympodium



Technologies – Infrastructure and Software

- **Infrastructure (Harware):**
  - **WLAN (or other wireless communication)**
  - **MM-desk**
  - **2 beamers**
  - **Electrical power supply (for many Notebooks)**
  - **Notebooks**

- **Software:**
  - **IVES**
  - **XP-Office**
  - **Webbrowser**
  - **VPN**

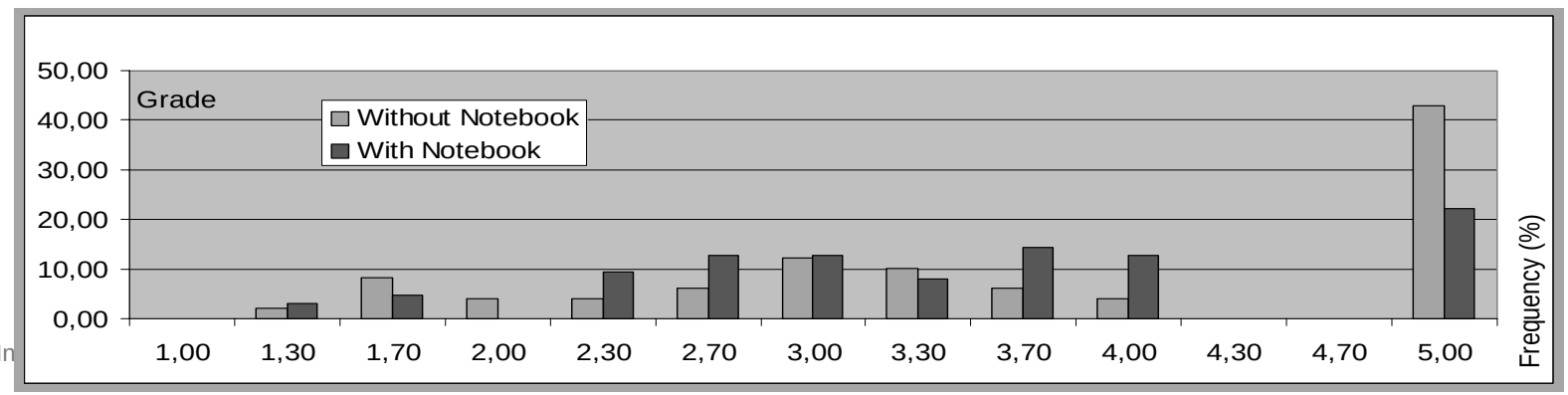
Pilot Lecture EBS

- **UNIX lecture as a block-event (3 days x 8 hours)**
  - **February 2003 (started on 2/10/2003)**
  - **Approx. 100 first year students (65 with notebooks)**
- **Structure of the lecture**
  - **Operating Systems Theory: 4 hours**
  - **Unix: 8 hours**
  - **Online exercises: 12 hours**
- **Slides in Powerpoint**

Evaluation

- **Drawbacks**
  - **Price of notebooks**
  - **Teacher training**
  - **Preparation effort of interactive material**
  - **Difficulty to train non-technical students**

- **Benefits**
  - **Fun of use**
  - **More attention and concentration**
  - **Great interest and cooperation,**
  - **Interactivity and feedback,**
  - **Exercises during the lecture,**
  - **Better exam results!**



Our Team

Thank you for your attention!

There is more: www.ubicampus.uni-hannover.de