„E-Learning Support Structures in Traditional Universities“

Prof. Dr. N. Apostolopoulos
Center for Digital Systems
Freie Universität Berlin: Facts & Figures

- **12** academic departments
- **157** bachelor’s and master’s degree programs
- **21** doctoral degree programs
- **29,000** students
- **2,662** academic staff
- **302,2** mil. € annual operating budget
- **112** mil. € annual funding
Institute for Latin American Studies
About Learning and Technologies

What is TEL?

A phone?
About Learning and Technologies

What is TEL?
A Telecom Company?
About Learning and Technologies

What is TEL?

An acronym for „Technology-Enhanced Learning“?
Excellence at Universities

Teaching
Learning
Research

CeDiS

Gerhard Casper, former President of Stanford University
About Lifelong Learning …
FIT: IT at Freie Universität
FIT Strategic Alliance
CeDiS – Structure

Applications

E-Learning
LMS
Authoring
CMS
Open Access
Content Repositories
Ports
Media and Design
Internet Technology
E-Publishing
E-Content
Web 2.0
Digital Archives
E-Exam
Applications
CeDiS – Teams

External Grants
FU E-Learning Grants
Learning Management System LMS
Content Management System CMS
Web 2.0
Media & Design
e-Publishing Open Access
Internet Technology
Authoring
User Support
CeDiS
DT in Education: Some Questions

- Why is E-Learning so important?
- Why is E-Learning so difficult?
- Is there a complexity bubble?
- Is there a unique strategy?
- Will AI solve many problems?
- Will blended learning solve most of the problems?
- Will learner-centered learning solve some of the problems?

- »Make wise use of Digital Technology (DT)!«
E-Learning / E-Teaching

Consulting, Support & Quality Management

• CeDiS provides the central online learning platform Blackboard (ca. 28,500 students and 2,500 courses, winter semester 2013/14)
• Consulting, conception and realization of Blended Learning courses
• MOOC vs. MOC
• Training and support for teaching staff and tutors
• E-Examinations
• E-Learning Grants Program

CeDiS offer integrated E-Learning solutions

• Charité
• Evangelische Hochschule Berlin
SUPPORT – Teaching Quality Initiative

- **inFU Days**
- Mentors / Coaching
- Support for starting phase of studies

- **E-Learning 2.0**
- E-Examinations
- Audio and Video
- Mobile Learning
- OSA

- **Training for new teaching staff**
- Qualification for mentors
- Teaching education

- Part of the project „LEON“ with the SUPPORT-project
- Financially supported by the German Federal Ministry of Education and Reserach
- Third party funding for „LEON“: **4,354,703 €**
Outline I

I. First Steps in E-Learning
II. E-Learning Engineering
III. E-Learning at a Traditional University
IV. Coordinated Action Plan
V. The Web 2.0 Initiative
VI. Lessons Learned
VII. Open Issues
Multimedia “made simple”
Fundamental Decisions for Multimedia Learning Applications

- Attractive digital learning material increases learners’ motivation and reduces the weaknesses of computer systems
- Problem-based learning (constructivism)
- Combination of theory, practice and computer-aided tools (search, animation, simulation, hyperlinks)
- Enhanced visualization of abstract topics
- Integration of video
- Active and rich interaction, personalization
- Multiple navigational assistance
- Creation of »aha«-effects

» Create humane applications «
The DIALECT Model

Theory

Basics
Models
Literature
Internet/Search

Practice

Computer

Navigation
Hyperlinks

Expert
Interviews

Case studies
Simulation

Visualization
Simulation

STORY
Motivation/
Didactics
Outline II

I. E-Learning as an Experiment
II. **E-Learning Engineering**
III. E-Learning at a Traditional University
IV. Coordinated Action Plan
V. The Web 2.0 Initiative
VI. Lessons Learned
VII. Open Issues
BMBF Project New Statistics

13 Departments at 10 German Universities

- European-University Viadrina Frankfurt/Oder
- University of Applied Sciences Cologne
- University Hagen
- Freie Universität Berlin
- Friedrich-Alexander University Erlangen-Nuremberg
- Humboldt University Berlin
- University of Bielefeld
- University of Bremen
- University of Hamburg
- University of Konstanz
- Virtual University of Applied Sciences
„Traditional“ versus „New Statistics“

Statistics: yesterday and today

Statistics: today and tomorrow
New Statistics: Multimedia Learning Environment
Der folgende Datensatz enthält die monatlichen Umsatzzahlen ausgewählter Produktgruppen eines Bekleidungszeithandlers sowie die durchschnittlichen Temperaturen der entsprechenden Monate. Stellen Sie die Umsatzzahlen sowie den Temperaturverlauf grafisch dar. Besteht ein Zusammenhang zwischen Temperatur und den entsprechenden Umsatzzahlen?

<table>
<thead>
<tr>
<th>Monat</th>
<th>Temperatur</th>
<th>Umsatz Kleidung</th>
<th>Umsatz Hose</th>
</tr>
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<tbody>
<tr>
<td>Januar</td>
<td>0,00</td>
<td>8.000</td>
<td>7.500</td>
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<tr>
<td>Februar</td>
<td>3.000</td>
<td>1.200</td>
<td>1.500</td>
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<tr>
<td>März</td>
<td>26.000</td>
<td>2.400</td>
<td>1.800</td>
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<tr>
<td>April</td>
<td>8.000</td>
<td>0.000</td>
<td>0.000</td>
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<tr>
<td>Mai</td>
<td>1.400</td>
<td>0.500</td>
<td>0.500</td>
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<tr>
<td>Juni</td>
<td>8.000</td>
<td>0.000</td>
<td>0.000</td>
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<tr>
<td>Juli</td>
<td>14.000</td>
<td>0.000</td>
<td>0.000</td>
</tr>
</tbody>
</table>

Statistischer Bericht

Dargestellt war folgender Datensatz:

- Grafik 1: Umsatz vor Temp
- Grafik 2: Temp vs. Umsatz

Die Daten wurden ausgewertet und in den folgenden Diagrammen visualisiert:

- Ansicht 1
- Ansicht 2

Die Abhängigkeiten wurden in den folgenden Streudiagrammen dargestellt:

- Diagonale
- Kreisdiagramm
Authoring: Structure of Learning Modules

Didactic concept

Motivation

Theory and basic knowledge

Examples

Exercises

Virtual Laboratory

Review of study material

Material for further study

Open questions

Problems

References

MOETADATA

Tutor
Manufacturing Learning Modules

- **Repository (SCORM)**
  - upload

- **Learning Module Editor**
  - export XML
  - XMetaL

- **Author**
  - request
  - integrate Media Production

- **Author 2**
  - learning module (XML)

- **Author 3**
  - learning module (XML)

- **Glossary, Bibliography**
  - examine
  - explain

- **LMSWWW Repository (SCORM)**
  - upload

- **XML**
  - transform XSLT
  - learning module (HTML)

- **WWW LMS**
  - upload

- **CeDiS Media Production**
  - preview

- **Author**
  - XSLT transform

- **Learning Module Editor**
  - integrate
Course creation

Students → learning → LMS (Blackboard) → publish →

Instructor 1 → composing → Course 1
Instructor 1 → selecting → Repository (SCORM)

Instructor 2 → Course 2
Instructor 2 → Repository (SCORM)
Economics of E-Learning

It’s the economy, stupid …
Outline III

I. e-Learning as an experiment
II. e-Learning Engineering
III. e-Learning at a traditional University
IV. Coordinated action plan
V. The Web 2.0 Initiative
VI. Lessons learned
VII. Open issues
Vision: Is E-Learning Easy to Do?!

Source: www.uni-potsdam.de/agelearning/
E-Learning Environments

“A not now honey, I'm learning online.”

A significant advantage of E-Learning is the creation of individualized learning environments.....

Source: www.open-academy.com/de/elearning/lernende_/index.html
E-Learning everywhere?
Digital Technology in Education: Future Vision...
Digital Technology and the Reality
Outline IV

I. e-Learning as an experiment
II. e-Learning Engineering
III. e-Learning at a traditional University
IV. **Coordinated action plan**
V. The Web 2.0 Initiative
VI. Lessons learned
VII. Unresolved issues
Media and Design
Distributed Campus, Homepage
CeDiS – CMS
Visual History Archive (VHA)

The Visual History Archive at Freie Universität Berlin

The Freie Universität Berlin is the first European university that is providing access to the Visual History Archive of the Shoa Foundation Institute for Visual History and Education of the University of Southern California (USC). Students, teachers and researchers at the Freie Universität as well as external scientific institutions and researchers have access to the Visual History Archive. This makes it possible to view the 52,000 video interviews and testimonies with the survivors and witnesses of the Holocaust. The Visual History Archive is the world's largest historical video archive. This website provides you with information on the background and utilisation possibilities of the Visual History Archive.

- Usage Information / Terms of Use
- Introductory Presentations
- Assistance with technical problems
- In order to directly access the Visual History Archive, please use the link Enter Archive
- Online Survey to evaluate the usage
CeDiS - LMS
LMS – a Central Learning Platform for Teaching

Student Access to the Central LMS
# Pro / Contra Blackboard LMS

<table>
<thead>
<tr>
<th>strong points:</th>
<th>weak points:</th>
</tr>
</thead>
<tbody>
<tr>
<td>- ease of use for students and teachers (maybe except Content Collection)</td>
<td>- mainly instructor-centered</td>
</tr>
<tr>
<td>- fairly stable operation</td>
<td>- lack of tools for student participation / collaboration</td>
</tr>
<tr>
<td>- scalable architecture</td>
<td>- poor technical documentation, proprietary API</td>
</tr>
<tr>
<td>- expandability (Building Blocks concept)</td>
<td>- old UI techniques (no deep linking possible)</td>
</tr>
<tr>
<td>- large user community</td>
<td>- lack of standard conformity e.g. SOAP, WSRP, JSR168</td>
</tr>
<tr>
<td></td>
<td>- lack of conformity with the German data protection laws</td>
</tr>
</tbody>
</table>
FU E-Learning Grants
FU E-Learning Grants - Growth

Financial Support

Multiplicator effect

Know-How

Freie Universität Departments

Project 1

Project 2

Project n
FU E-Learning Grant Program – Workflow

Instructor

CeDiS

StC eL

Application submission advice
Application recommendation
Application decision

Know-how Grant

e-Learning Project is growing
FU-wide E-Learning Dissemination
FU E-Learning Grants – Project Overview
Institute for Latin American Studies
E-Learning Projects

Knowledge Production of Latin-American Intellectuals

Digital Sources of Anthropology of the Americas

Student foreign visits (study abroad)

Women and Gender in Latin America

Video example

Video example
Concept for Interviewing

During the seminar, the portraits of four outstanding female researchers were compiled: Dora Barrancos, Marisa Belaustegui-goitia, Elizabeth Jelin, Renate Rott.

Interview questions on the central topics and key terms of the researchers’ work were formulated.

Following the interviews, the recordings were cut, transcribed and titles and paragraph headings were added.
Students‘ Experience

- Media skills
- Interlocking of theoretical knowledge and practical skills
- Sustainability of the knowledge gained
- Routine part of teaching
Advancing E-Learning

The FUeL project
(FU e-Learning)
FUeL – Key Issues

• Establish Blended Learning in the Departments and Institutes

• Integrate the Central Learning Management System within the Freie Universität IT-Infrastructure

• Create a Central Student Portal

• Reuse e-Learning Materials (Learning Object Repository)

• Provide Expertise on the Market
Establishing Blended Learning

- Interdisciplinary Working Groups
- Local Structures and Expertise
- e-Learning Funding Program
- Departments
  - Central Institutes
  - Continuing Education
- Evaluation
- FUEL Strategy
- Central Services
- CeDiS
E-Learning Consulting

- Central LMS Blackboard
- Content creation
- Support
- Teachers
- Funding Program
- (Media-) Didactics
- ...
From the Traditional Classroom to Blended Learning

Classroom
- Lectures
- Courses
- Literature
- Exercises
- Tutorial
- Internship

Online
- Online Surveys
- E-Mail
- Chat
- Forums
- Multimedia
- Digital Materials
- Self-tests

Blended Learning

Blended Learning I
- "Introduction"

Blended Learning II
- "Extended"

Blended Learning III
- "Maximum"

Online-Courses

Lectures
- Multimedia material
- Exam preparation
- Tutorials
- e-Tutor
- Library
- Information
- Material collection

Exercises

Library

Tutorials

Information

Material collection

e-Tutor

Multimedia

Digital Materials

Chat

E-Mail

Forums

Self-tests

From the Traditional Classroom to Blended Learning

Forums
E-Learning in Use

Degree of Utilization

Students (in 100s)

Courses

Summer 04
Winter 04/05
Summer 05
Winter 05/06
Summer 06
Winter 06/07
Summer 07
Winter 07/08
Summer 08
Summer 09
IT-Integration

Integrating the Central LMS with the IT-Infrastructure of Freie Universität Berlin
IT-Integration

- SAP/CM Campus Management
  - courses
  - course participants
  - marks, credits

- FUDIS FU Identity and Directory Service
  - student records
  - teacher records
  - authentication

- Streaming Server
  - video
  - audio

- Central Learning Management System
  - Blackboard

- ALEPH, Metalib
  - online-Catalogue
  - digital Media

- Infopark NPS
  - learning materials

- Central Content Management System

- CeDiS

- Data Center

- Library

Legend:
- in use
- in development
- planning stage
Outline V

I. e-Learning as an experiment
II. e-Learning Engineering
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### „Web 2.0” / Social Software

<table>
<thead>
<tr>
<th>Social Software</th>
</tr>
</thead>
<tbody>
<tr>
<td>Content produced by users</td>
</tr>
<tr>
<td>Low threshold / easy to use</td>
</tr>
<tr>
<td>The Web as a workspace</td>
</tr>
<tr>
<td>User self-organization</td>
</tr>
<tr>
<td>Social networks</td>
</tr>
<tr>
<td>Linking of content and services</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Blogs and Wikis in teaching</th>
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</thead>
<tbody>
<tr>
<td>Simple creation of Web content by teachers and students</td>
</tr>
<tr>
<td>Supporting collaboration and communication</td>
</tr>
<tr>
<td>Discursive writing style</td>
</tr>
<tr>
<td>Peer-to-peer review</td>
</tr>
<tr>
<td>Working together on texts</td>
</tr>
<tr>
<td>Knowledge exchange through networking and linking up</td>
</tr>
</tbody>
</table>
### „Web 2.0“ / Social Software

#### CeDiS Blog Services

**Blog availability**
- personal blog for all members of Freie Universität Berlin
- (multi-user) blog for Blackboard courses
- Selected System: WordPress

#### CeDiS Wiki, RSS Services

**Wiki availability**
- Wikis for all members of Freie Universität Berlin
- Wikis for Blackboard courses
- Selected System: Confluence

**RSS feeds**
- Announcements from Blackboard courses

(Podcasts, Social Bookmarking, ...)

„Web 2.0“: Social Software

Blogs (Weblogs)
Website that periodically has new entries (sorted chronologically)

Used mostly for: Personal diaries on the Internet

"Web 2.0": Social Software
"Web 2.0" / Social Software

Wikis

Collection of websites that can be edited immediately

Most famous example: Wikipedia

"Web 2.0" / Social Software
Outline VI

I. e-Learning as an experiment
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Digital Technology in Education: Involves...

...»computer-specific« features (storing, searching, calculating)
...visualization techniques
...media-enriched contents
...extensive use of tutorials & help functions
...multiple navigation and tracking
...instructor’s »presence«
...problem-based approach
...»real« AND virtual (i.e. hybrid) reality
...extensive customization
...common-sense intelligence (things that teach)?
...user-controlled privacy and security!

...»Create humane applications«
Digital Technology in Education: Avoids …

... new incomplete systems
... additional complexity
... incompatible environments
... slow responding applications
... poor design
... poor interaction
... »surprising« features
... »deceptive« security
... poor personalization
e-Learning lessons – Summary

- e-Learning is a long-term project
- Executive support is necessary
- Competence Center
- Close collaboration with the departments
- Decentralize know-how
- Stepwise Migration
- Offer grants and incentives
- Central LMS leads to high synergy effects
- Open content and commercial content helps saving costs
- Multimedia authoring is challenging
- The new Web 2.0 paradigm might hit central structures
- Reuse of learning modules is ...
- Reduce technical complexity (KIS)
Outline VII

I. e-Learning as an experiment
II. e-Learning Engineering
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VII. Open issues
Open Issues

1. Is learning with multimedia more effective?
2. How can we evoke ‘aha’-effects?
3. Are there simple and good models of evaluation?
4. How to integrate the authority of the instructor?
5. Design reusable content modules
6. Exploit the use of games
7. High-level authoring tools for multimedia learning modules?
8. How to build intelligent navigation systems?
9. How to create adaptive learning environments?
10. Are there such things as ‘learning-agents’ (»things that teach«)?