Rethinking E-Learning: Continuous Improvement through Technology-Enhanced Learning

Prof. Dr. Gustaf Neumann, WU
Dr. Oliver Vettori, WU
E-Learning: too much emphasis on the „E“?

“My course lacks interactivity and it has no point. I assumed the software would take care of that!”
2002: E-Learning as a Necessity

Background

- 2002: Free access to public Universities in Austria
- Fixed Budget, Fixed Resources
- Number of freshmen increased from 2001 to 2002 from 3,000 to 4,000

University

- completely overcrowded,
- renting cinema centers,
- hiring security personnel to limit access to Audi.Max.
- Applied in despair for a extra public grant from Ministry
Technology as an Enabler for Rethinking Education

- **Goals in 2002:**
  - Streamline education in the first study year to be able to deal with 1000+ freshmen/course
  - Move potential dropouts to the first year
  - Improve efficiency of learners AND teachers
  - Create standardized modules that can be thought in a variable number of parallel courses
  - Develop concepts for accelerating study progress supported by the E-Learning platform (0th semester, half-semester)

**BUT NOT:** distance education

- **Main idea:**
  - *Learn@WU* as a content project of the entire university
10 Years later: Learn@WU as Integral Part of Learning Infrastructure

- More than 120,000 learning resources have been developed since 2002
- More than 25,000 users are currently registered
- More than 400,000 forum contributions have been written since 2002
- Students solve up to 600,000 interactive exercises per day online
- Learn@WU regularly ranks as the best-assessed university service and most trusted information channel
- More than 500,000 class-room exams have been prepared/corrected via Learn@WU (via mark-reader)

“How should we learn without Learn@WU?”
(anonymous student)

“Without Learn@WU, the operations of our university would not be possible” (Christoph Badelt, Rector of WU)
Learn@WU is one of the world’s **mostly intensively used** E-learning platforms in higher education:

- Up to 15 Mio hits and 3,3 Mio page impressions per day from registered users
- Up to 2,500 concurrent users, over 250 views/sec
- Up to 235 GB/day of content delivered
- Average response time on views less than 0.05 sec

Current annual growth rate: ~15%
Sample Day: Active Learners (5 Minutes Interaction Span)

Midnight:
- 600 active users
- larger than Audi.Max

“Active”
- Click within 5 minutes
- Just authenticated users

Max Values:
- Up to 2,500 concurrent active users
- Up to 15,000 users log in per day
Success Factors

- No single silver bullet

- Vision: Use Technology Enhanced Learning to continuously rethink and improve university’s knowledge transfer processes

  - People
  - Organization
  - Content
  - Processes
  - Research
  - Technology

Technology as *enabler* and a *catalyst*
Success Factors: Technology and Research

- **Highly scaleable Platform**
  - Fully based on Open Source software components
  - OpenACS (Community Framework),
  - DotLRN (Course Management + Collaboration tools)
  - PostgreSQL, NaviServer, Next Scripting

- **Integration with e-learning Research**
  - Technical Lead at the Institute of Information Systems and New Media
  - Actively participating in 10 EU Research Projects (e.g. Network of Excellence)
  - Technology Transfer through University Spin-off Knowledge Markets (K12)
Success Factors: Content and Development

- **E-Learning integrated with curriculum**
  - Study programs in first year built around E-Learning
  - E-Learning more than an optional add-on

- **Institutional Development at the University**
  - Annual budgets for content improvement
  - Various kinds of E-assistants/e-tutors
  - Integrated with staff-development (e.g. trainee-programs)
  - Integrated with Campus IT System

- **Actor-Centred Platform-Design**
  - University as a “community of communities”
  - Communities composed of
    - Groups of students, classes, courses, programs, alumni, ...
    - Members and administrators (decentralized management)
  - Shared Design and Responsibility
  - High degree of flexibility within a shared framework
E-Learning and Quality @ WU: a Multilevel Relationship

Teaching and learning community as quality culture

**Learning effectiveness:** Understanding learning

**Process effectiveness:** *E-Learning as org. support*

**Teaching effectiveness:** *Feedback & development*

**Innovation:** *E-Learning as a didactic tool*

**Efficiency:** *E-Learning as a cost-reducing factor*
Supporting Program Management
Every Course is embedded in a program and every teaching and learning activity is part of a more complex process.

- Program Cockpit
- Learning Activity Management
- Electronic thesis process
Learning Analytics

Final points vs. topic duration

rep
- ○ 0
- △ 1
- + 2

points

topic.duration

Frequency

Frequency
Supporting Learning Effectiveness: Assessment Improvement

Assessment Analytics: e.g. WU’s MC Monitor

Learning Analytics: e.g. evaluation of learning behavior (Marketing, Finance)

Learner and Student Surveys: e.g. WU’s Student Panel Monitoring
Towards a Shared Quality Culture

Workshops & Buddy System

Learn@WU Community

Future Learning Now!

Coffee @Learn

Personal support & continuous dialogue
“There aren’t any icons to click. It’s a chalk board.”