

Web-Based Training and E-Learning

Hauptseminar “E-Learning” – Sommersemester 2008

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Agenda

- ≡ 1. Introduction
- ≡ 2. Shortcomings of HTML and Hypertext Navigation
- ≡ 3. Learning Management Systems
- ≡ 4. Blended Learning
- ≡ 5. Use Cases
- ≡ 6. E-Learning 2.0
- ≡ 7. Conclusions

1. Introduction

- ☰ What is Web Based Training?
 - ☰ WBT and E-Learning
 - ☰ Approximately ten years old
 - ☰ Philosophy: learning anytime anywhere.
- ☰ „The process of learning with tutor and learner separated by time or space where this gap is bridged by online technologies.“
- ☰ Courseware: set of documents containing educational content as well as a navigational structure to access them.
- ☰ Any WWW site containing educational material could be considered a WBT system.

1. Differences between WBT and CBT

≡ Technological

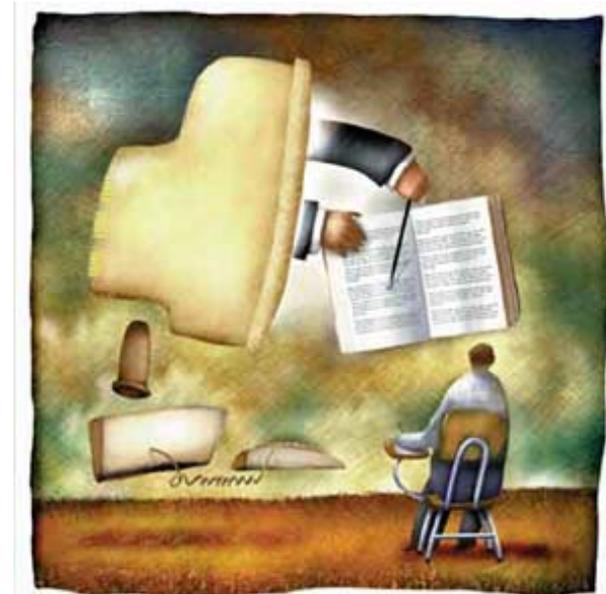
- ≡ Platform independent
- ≡ Better suited for mobile devices
- ≡ Content always up-to-date
- ≡ Potential unavailability and slow response time
- ≡ Browser compatibility

≡ Economical

- ≡ Financially beneficial for large companies
- ≡ Cheaper to buy individual modules
- ≡ Online time and traffic costs

≡ Psychological

- ≡ Positive impact on the learning experience by learning in groups online
- ≡ In a traditional CBT environment users rather isolated
- ≡ Users communicate and learn from one another



Source: <http://www.unl.pt>

2. Shortcomings of HTML and Hypertext Navigation

☰ HTML-documents (nodes) and static links between them could → several inherent flaws

- ☰ Lack of meta-data
- ☰ No internal logic
- ☰ Presentation of the data can be incoherent and chaotic
- ☰ External educational nodes can become outdated or removed

☰ Three user roles and individual drawbacks

☰ Learners

- ☰ Use the WBT system to improve knowledge and skills
- ☰ Motivated by a intrinsic or extrinsic Learning Goals
- ☰ Tunnel effect
- ☰ Getting lost in cyberspace

2. Shortcomings of HTML and Hypertext Navigation

≡ Tutors

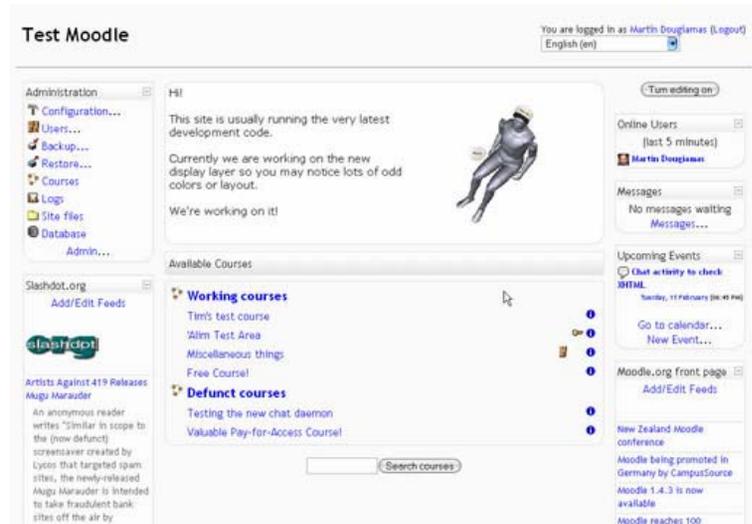
- ≡ Manage learning process and bridge gap between learners and courseware
- ≡ HTML-documents offer limited customization possibilities
- ≡ Questions have to be answered multiple times
- ≡ Difficult for the tutor to see individual progress of the students
- ≡ Personalized and learner-centered tests are difficult to generate

≡ Authors

- ≡ Create and publish documents to courseware repository
- ≡ Combine documents into a navigable structure
- ≡ Navigation structure has to be modified every time a new document is added to the navigation
- ≡ No modularization, potential of reusing content is wasted

3. Learning Management Systems

- ≡ From approximately 1997 on Learning Management Systems were established
- ≡ Sometimes called Virtual Learning Environments
- ≡ Characteristics and main advantages
 - ≡ Unified platform for delivering educational content
 - ≡ Modularizing the content
 - ≡ Fostering user communication and collaboration
 - ≡ Content is stored without presentation layer
 - ≡ Adaptability
 - ≡ Centralized user-management component



3. Technical Implementation

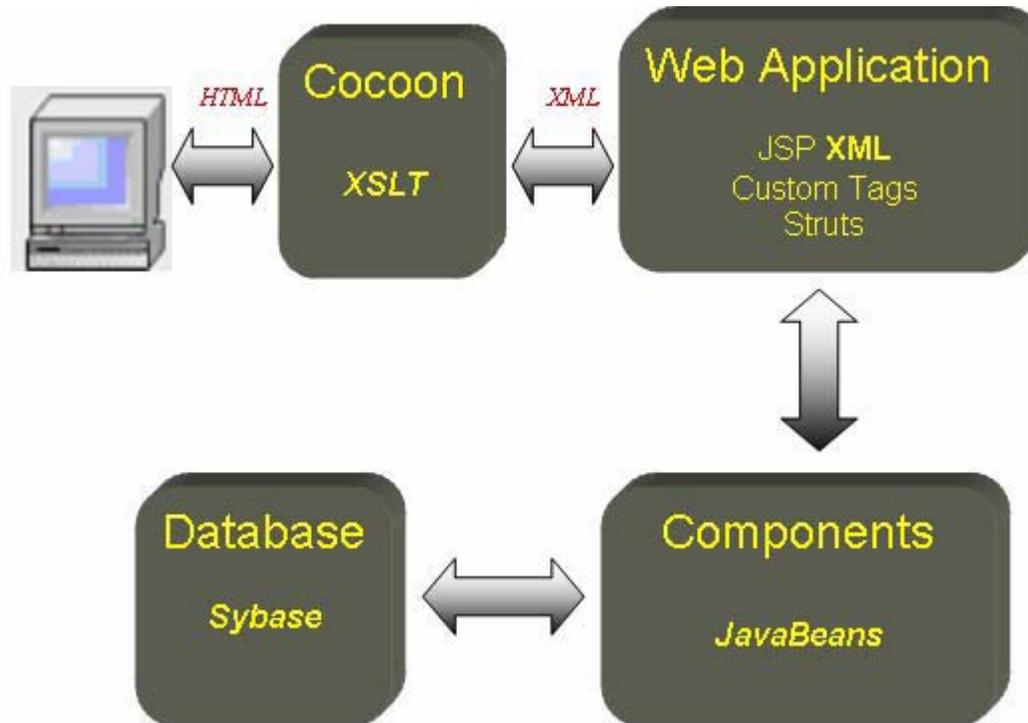


Fig. 1. Unified data-structure of an LMS. Storing educational content without its presentation but with extensive meta-data and transforming it with XSLT into HTML. Source: (Darbhamulla and Lawhead, 2004)

4. Blended Learning

- ≡ Psychological problem of E-Learning is the feeling of isolation
- ≡ Blended Learning: combining traditional face-to-face sessions utilizing slides with virtual E-Learning courseware
- ≡ Tutors get to know their students
- ≡ Personal conversation is the best solution to elaborate the learner's problems
- ≡ Study by Computer Science Department of the *Universidad Carlos III de Madrid*
 - ≡ Two groups of 50 students
 - ≡ Blended Learning OOP and Pure Virtual OOP Basics

4. Blended Learning

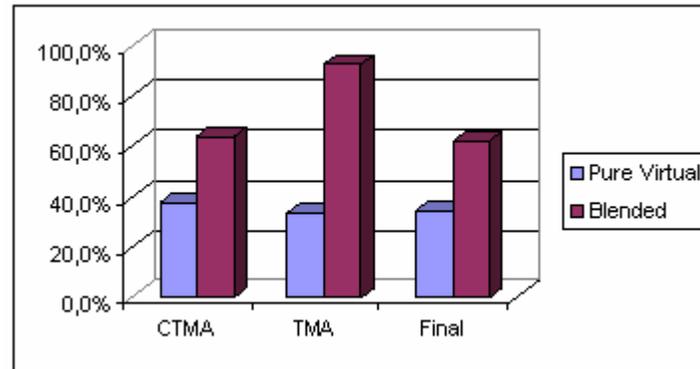


Fig. 2. Percentage of students from both groups that completed Compulsory Tutor-Marked Assignments (CTMA), Optional Tutor-Marked Assignments (TMA) and Final evaluation. Source: (Dodero et al., 2003)

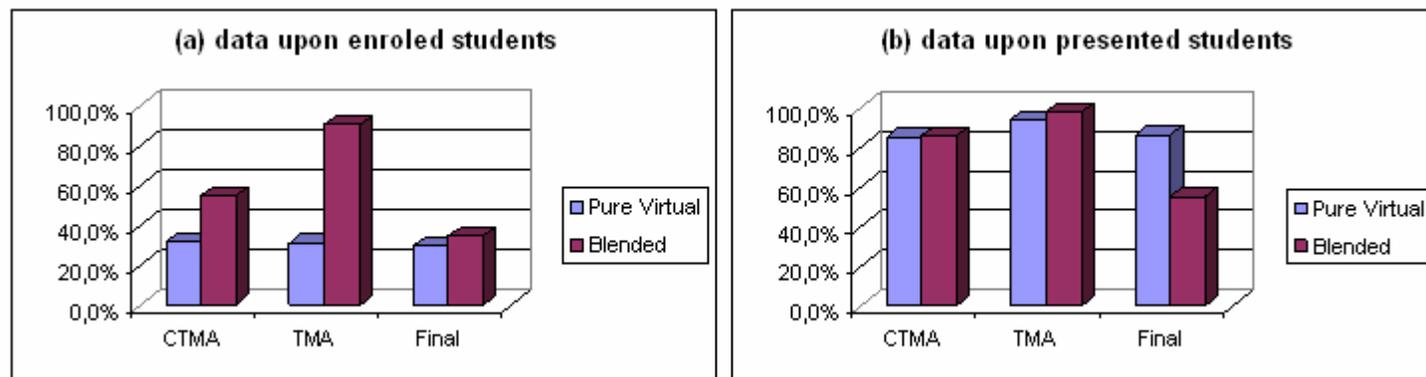


Fig. 3. Percentage of students from both groups that passed CTMA, TMA and Final evaluation. Figure (a) shows the results of all enrolled students and (b) only of the students participating in the particular test. Source: (Dodero et al., 2003)

5. Use Cases

≡ Real life applications of E-Learning

≡ South African companies

- ≡ 15 South African companies from different fields: energy, mining, insurance, banking, telecommunication, and industrial services sectors
- ≡ Delivery of online learning materials and tutorials as well as technical simulations
- ≡ Communication tools like voice and text chat, mail, forums and message broadcasting
- ≡ Almost exclusive use of Blended Learning approach
- ≡ Boost in motivation and positive attitude due to the enhanced individualization of online learning
- ≡ Less fatal accidents at a mining company and more frequent contract closings at a bank
- ≡ Air transport company successfully delivered tutorials

5. Use Cases

☰ Japanese universities

- ☰ Mandatory Computer Literacy subject at *Sapporo Gakuin University* up to 1,000 students
- ☰ Difficult to test and give consistent and reliable marks to the students
- ☰ Automated online marking system to process Word- and Excel-files
- ☰ Unburdens the teachers and tutors of some of their workload
- ☰ The indirect benefit for the learners is the improved consistency of marking results

- ☰ Japanese *Hokkaido University's* online learning system
- ☰ Online HTML and PDF teaching material distribution: learn at own pace but static
- ☰ Scheduler: deadlines and completed tasks
- ☰ Forums: compensation for large classes
- ☰ Performance monitor: personal progress in relation to the other students' progress
- ☰ No integrated platform to take advantage of synergies

6. E-Learning 2.0

Wikis

- Community generated and administered content.
Editorial integrity is not guaranteed.

Educational blogs

- Approachable design and commentary function.
Frequently updated content by academic institute or professor.

Podcasts

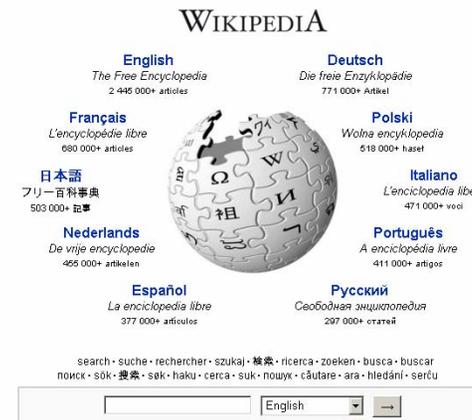
- Audiofiles distributed by RSS-feeds. Educational content by American universities → iTunes U. Learning while driving a car or cooking a meal.

Virtual worlds

- User interaction in a visual environment can foster user collaboration a achieve a common goal. Application is very game-like however and can distract from learning content.

Syndication and aggregation of educational content

Problem of user feeling lost in cyberspace



Source: <http://www.arstechnica.com>

7. Conclusions

- ≡ WBT vs. CBT
 - ≡ Platform independence, better scalability and emphasis on cooperative and collaborative learning
 - ≡ Online connection required can lead to additional fees or the service being unavailable
- ≡ Plain HTML documents and simple hyperlinks between them possess multiple drawbacks to the learners, tutors and authors
- ≡ Educational material should be modularized and integrated into a Learning Management System
- ≡ Adaptability has the most potential but not yet fully realized
- ≡ Blended Learning can boost motivation but not performance
- ≡ Web 2.0 tools should be integrated seamlessly into existing LMS and could prove a valuable component for more user interaction and involvement
- ≡ Remote delivery of educational content will enrich and complement the traditional face-to-face courses but not substitute them in the near future

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