E-Learning Standards
Critical and Practical Perspectives

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Agenda

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- E-learning Platform Wörterwelt
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Motivation

- **E-Learning** as viable alternative to traditional face-to-face teaching methodologies
  - breaks limitation in *space* and *time* [Yu and Fan [2009]]
- **write-once-use-often** approach
  - encapsulated, reusable Learning Objects (LO)
  - described with Metadata
  - accessible via Learning Management Systems (LMS)
  - inter-operable through E-Learning Standards
E-Learning Standards “madness”

Figure 1: Selection of E-Learning Standards and Bodies

Figure 2: Collab. Dev. Model for Formal Learning Standards [Naidu [2006]]
Figure 3: SCORM Content Hierarchy [reproduced from Varlamis et al. [2006] and Jesukiewicz[2009a]]

Figure 4: SCORM Content Package [Jesukiewicz [2009a]]
E-Learning Standards - Problems

- complexity
  - very high abstraction layer
  - forced to implement entire specification (SCORM ~1000 pages)
- technological vs. pedagogical aspect of learning
  - learning is not a tidy, mechanical process [Marshall 2004]
  - heterogeneous nature of education [Cressman 2005]
- still “only” de-facto standards
  - room for interpretation → numerous proprietary ports emerged
- cost-benefit ratio
  - feasible for less intricate projects?
“Learning does not happen as a by-product of the technology, it is, or rather should be, the **Raison d'être** of the technology.” [Groom 2008a]

“What is BlackBoard doing? Well, they are taking the experiments and innovations of thousands of people and re-packaging them as their own, unique contribution to the educational world of Web 2.0.” [Groom 2008a]
E-learning Platform Wörterwelt

“A proprietary approach with a focus on common Web Standards”

http://www.woerterwelt.at
E-learning Platform Wörterwelt

- cooperation between
  - FÖDt (Prof. Muhr) – linguist tasks
  - IICM (Prof. Helic) – technical implementation

- 2 main objectives:
  - enrich existing language corpus with additional translation languages & define syntax rules

Figure 6: Wörterwelt [Muhr and Kadric (2005)]
Dictionary Module

- based on **ZK Java Framework**
  - client-server architecture
    - server-centric
    - classic **3 tiers**
- 3 main functional components
  - language selection
  - auto-completing search box (*widget*)
  - dynamic grid (*widget*)
- client-server synchronization through ZK's **Direct Push**
  - 1:1 mapping *widgets ↔ components*
Exercises Module

- based on **PHP** and **Dojo JavaScript Toolkit**
  - server-side **exercise repository**
    - accessible through **proprietary Metadata**
  - client-side **business logic**
- 3 main functional components
  - language selection
  - linguistic area selection
  - LP or exercise selection → start course
- client-server synchronization through **JSON** messages
  - server-side **session mgmt.** to monitor user's progress
Testing & Development

• **spike solutions**
  • 4 prototypical configurations for *dictionary* module
  • overall goal: platform independent setup

• **agile** approach
  • rather short release cycles (8 releases in ~3 months)
  • **TDD** for grid's model: *JUnit*
  • handcrafted test classes
  • monkey testing for presentation layer 🙈
Usability

- **Usability Test** – an “informal” Formal experiment
  - 20 (representative) test participants
  - between-groups design: GYORB → linguistic proficiency
  - 10 tasks → no time limit, objective success rates
  - feedback questionnaire → subjective satisfaction ratings
  - final interview → “How was it?...“

- **Results**
  - 100% success rate, **BUT**
    - subj. data indicated need for further feedback facilities
    - updated requirements and application
Results

- all requirements fulfilled → fully functional
- usability issues detected and corrected in new release
- 2 additional tools for linguistic data mgmt.
  - TextTools (C++), ALEXIK HTE (PHP)
- Wörterwelt runs 24/7 at FÖDt
  - http://www.woerterwelt.at
- based on exercises module:
  - follow-up project Sprichwort-Plattform
  - template based abstraction layer
  - http://www.sprichwort-plattform.org
E-learning Platform Wörterwelt

Live Demo
Conclusion

- LMS feasible without blindly adhering to standards
- primary focus on
  - common Web standards and practices
  - clean architecture / proprietary Metadata standard
- more flexible
  - easily manage exercises
  - less overhead when developing learning material
- concept has proven valuable
  - Sprichwort-Plattform as follow-up project
A take-away message

“SCORM is a great standard but it **only gets us 90%** of the way down the road to true interoperability. Even amongst products that are ADL certified there are a number of **different implementations**, interpretations and design decisions – all of which have a **significant impact on interoperability**.

Interoperability issues **will arise**, even in the best SCORM implementations. It is not a question of “if” but rather “**when**” and “**how many**”.

[Rustici 2009]
Thank you for your attention!

Questions?
References


- **Image of monkey**: http://tlc.howstuffworks.com/family/how-to-draw-a-monkey.htm

- **Flag of Canada**: http://holger-goes-canada.blogspot.com/