Benefits of XML Learning Objects

Maik Stührenberg
Applied and Computational Linguistics Group
Justus-Liebig-Universität Gießen

maik.stuehrenberg@uni-giessen.de
Table of contents

1. The MiLCA project
2. The Current State of Web Based Training
3. Structured Content
4. The ILIAS DTD
5. Benefits
   - Current Benefit - Workflow
   - Future Benefits
The MiLCA Project

• Teaching Computational Linguistics with Media-Intense Learning Objects
  ➢ Medienintensive Lehrmodule in der Computer-linguistik-Ausbildung

• New Media in Education Funding Programme by the Federal Ministry of Education and Research
  ➢ Bundesministerium für Bildung und Forschung
The Current State of Web Based Training

• WBT platforms have three disadvantages:
  – Non-standard usage of metadata
  – Lack of reuse and import/export capabilities
  – Content often HTML or proprietary data format

Solution: **Use of structured content**
Structured Content

• Provides information about hierarchical relations between elements
• Strictly separates content and layout

➤ Markup languages are used to structure content
XML – eXtensible Markup Language

- Metalanguage
- Designed to define markup languages for structuring data
- World Wide Web Consortium (W3C) Standard
- Based on ISO Standard SGML
- License free, platform-independent and well-supported
• Grammar to describe markup language syntax
  – Elements
  – Attributes
• List of elements and attributes available
• Ensures structural validity
• Formalization of the idea of an document type
The ILIAS DTD

- Based on the MiLCA DTD
- Metadata concepts based on Learning Object Metadata Standard (LOM) WD 6.1
  - IEEE Learning Technology Standards Committee
- Content element adapted to the needs of ILIAS
The ILIAS DTD

- Root element `LearningObject` consists of:
  - MetaData
  - Layout
  - Content
  - Test
  - Glossary
  - Bibliography
  - Addition
The **MetaData** element contains information about

- title
- author
- structure
- languages used
- size
- technical requirements
- educational use
- taxonomy
- classification
- copyright
- ...
Current Benefit – Workflow

• XML documents can be easily transformed into several output formats with the help of XSLT

  ➢ eXtensible Stylesheet Language Transformation
    - Open W3C standard
    - XML syntax
    - License free, platform-independent and well-supported

  Single-Source-Publishing
• Authors create LearningObjects with an XML editor of their choice
Current Benefit – Workflow

- Revision and Metadata information
Current Benefit – Workflow

• The XML document is parsed and transformed into its output format (e.g. (X)HTML and PDF)
Future Benefits

- The LearningObject can be imported into ILIAS
Future Benefits

• Addition of educationally motivated metadata
  – Support of a plurality of didactic scenarios
  – LearningObjects will be able to adapt to the learner’s way of learning
  – Learning model more user-centred
Thank you!