

Supporting Self-Regulated E-Learning with Visual Topic-Map-Navigation

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Knowledge Media Research Center
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Overview

- Teaching and learning today
- Topic Maps
- LmTM
- Technical background
- Textbased Navigation
- Graphically Navigation
- Alphabetic List
- Links in Footer
- Experiences
- Ideas

Teaching and Learning today

- Students are expected to be more active
- Self-regulated learning
- Responsible for own learning progress
- Usage of „new media“
- Need of modern materials for teaching and learning for teachers and students
- Linearity is a block
- Danger: loss of structure
- Solution: Orientation by Topic Maps

Topic Maps

- ISO-standard: ISO 13250
- TAO of Topic Maps:
- Topics: A topic stands for some real-world subject.
- Associations: Relationships between topics.
- Occurrences: Information resources of topics.
- First only SGML, today also in XML
- XTM: XML Topic Maps

LmTM – Lernen mit Topic Maps

- Topic maps to guide students through huge amounts of information
- Topic maps as base for navigation
- Topic maps as abstract layer over materials
- Usage of topic maps textually and graphically
- <http://www.LmTM.de/>

Technical Background

- Topic maps stored in XML
- Output in XHTML or SVG – both are XML
- Transformation via XSLT
- Software: Apache, Tomcat, Cocoon, Xalan, Xerces, Java, ...

Textbased Navigation

- Output in XHTML
- 1.) Aktuelles Thema
- 2.) Lern-Materialien abrufen zum aktuellen Thema
- 3.) Navigation zu verwandten Themen
- Translation of technical terms to colloquial terms was a must
- Live demonstration

Graphically Navigation

- Most comfortable use of topic maps via visualisation
- Output in SVG: Scalable Vector Graphics
- W3C-standard
- Actual topic as center
- Occurrences below
- Associated topics around
- Blue dots: number of associations
- Red dots: number of occurrences
- Live demonstration

Alphabetic List

- Additionally alphabetic list of all topics with occurrences
- Usage as an encyclopedia
- Live demonstration

Links in Footer

- Extract of information in topic maps as link-list in page footer:
- Occurrences of actual topic at the left
- Associated topics at the right
- Live demonstration

Experiences

- New paradigm of navigation
- Introduction is helpful
- Identifiers of associations are not noted
- Screen size and resolution can't be big enough
- Different skill levels of students in self-regulated learning

Ideas

- Show short text via mouse-over
- Reading direction of associations
- Creating of topic maps
- Semantic Web
- OWL-Ontologies
- <http://www.OntoLearn.de/>

The End

Thank you very much!