



dLCMS

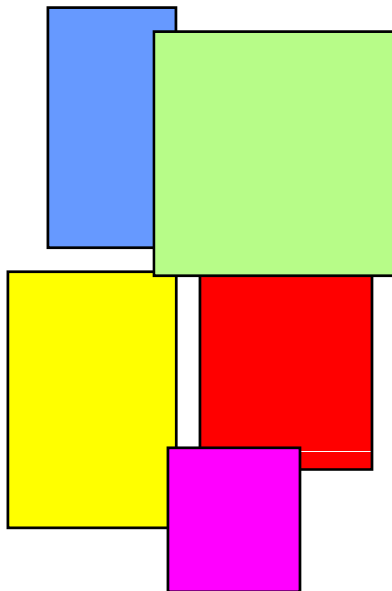
dynamic Learning Content
Management System

Samuel Schluep, schluep@iha.bepr.ethz.ch

Contents

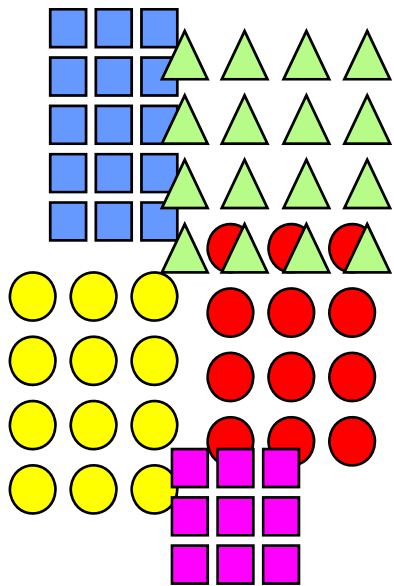
1. Introduction to Learning Objects
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E-Learning Content Today



- ⊕ Creating e-learning content is costly.
- ⊕ Existing electronic courses are seldom reused.

Learning Objects (LOs)



- ⊕ Small modular building blocks
- ⊕ Can flexibly be assembled to larger learning units
- ⊕ Can be shared among teachers, according to their specific needs
- ⊕ Reusable, accessible, interoperable, durable

Standardization

- ⊕ Learning objects standardization
 - ◆ Metadata
 - ◆ Packaging
- ⊕ No established standards for learning content and its structures!

Learning Objects (1)

The screenshot shows a web browser window titled "HyperBook X5000" with "epsych" and "Graff Industries" in the header. The main content area has a blue background with a grid pattern. On the left, there is a text block explaining the Müller-Lyer illusion. On the right, there is a diagram showing two horizontal red lines of equal length. The top line has outward-pointing arrowheads, and the bottom line has inward-pointing arrowheads. Below the text and diagram, there is a navigation bar with buttons for "index", "map", "Müller-Lyer introduction", "prev", and "next".

HyperBook X5000 epsych Graff Industries

To the right is an animated diagram that illustrates the Müller-Lyer illusion. The two lines are equal in length, but when the "arrowheads" appear, the bottom line looks longer. Several effects are thought to contribute to the Müller-Lyer illusion. If the figures are interpreted in three dimensions, the upper image is seen as the outside edge of a box, while the lower image is seen as the inside edge of a box. Since it is assumed that the two "solid objects" rest on the same surface, the outside edge appears closer to the viewer than the inside edge. The more "distant" line is then interpreted as larger, to correct for the difference in apparent distance.

index map Müller-Lyer introduction prev next

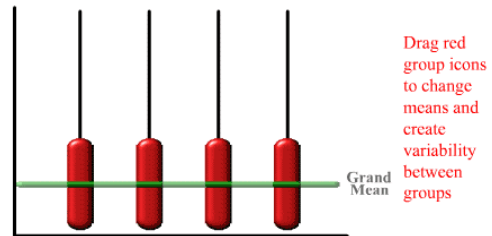
epsych - Psychology Department at Mississippi State University
http://epsych.msstate.edu/descriptive/Vision/muller_ly/index.html

Learning Objects (2)

[Read Instructions for using Visual ANOVA](#)
[Read an online, printable lecture about One-way ANOVA](#)
[Do Computer-graded Online Homework](#)
[Do Handwritten Homework with Answer Key](#)

Understanding ANOVA Visually

MSBetween MSWithin Instructions



Use buttons to increase or decrease variability within each group

$$F = \frac{\text{Var Between Means}}{\text{Var Within Groups}} = \frac{MS_{\text{Bet}}}{MS_{\text{Within}}} = \frac{\text{---}}{\text{---}}$$

F =

Visual ANOVA Instructions

Copyright 1998, 2000 Tom Malloy

Note: These instructions are abstracted from and can be supplemented by the full web lecture on

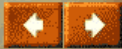
Tom Malloy

<http://www.psych.utah.edu/stat/introstats/anovaflash.htm>

Learning Objects (3)

Robert Maddux developed a model matrix to explain five ways in which we manage conflict.

Win/Lose	Problem Solving
Compromise	
Avoidance Style	Accommodating



Robin Rathsack 2004

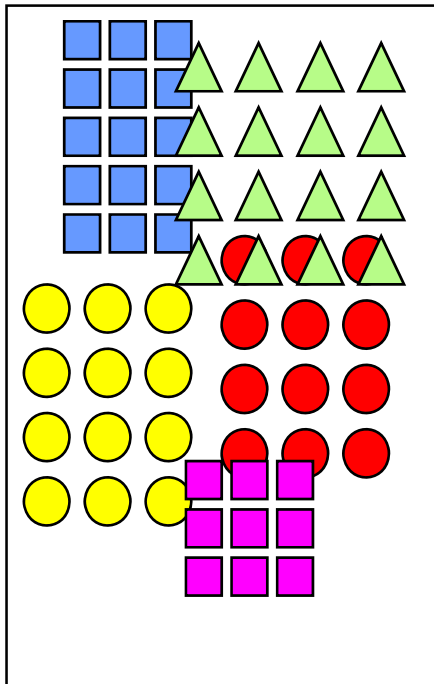
<http://www.wisc-online.com/lrnobj/psychHR/PHR300/index.html>

*d*LCMS Goals

1. Use of small modular learning objects
2. Standardized structuring to separate content and graphical presentation
3. Centralized content management
4. Flexible and easy-to-use assembly of learning objects to larger learning units
5. Flexible graphical layout and design
6. Future-proof data formats for learning content

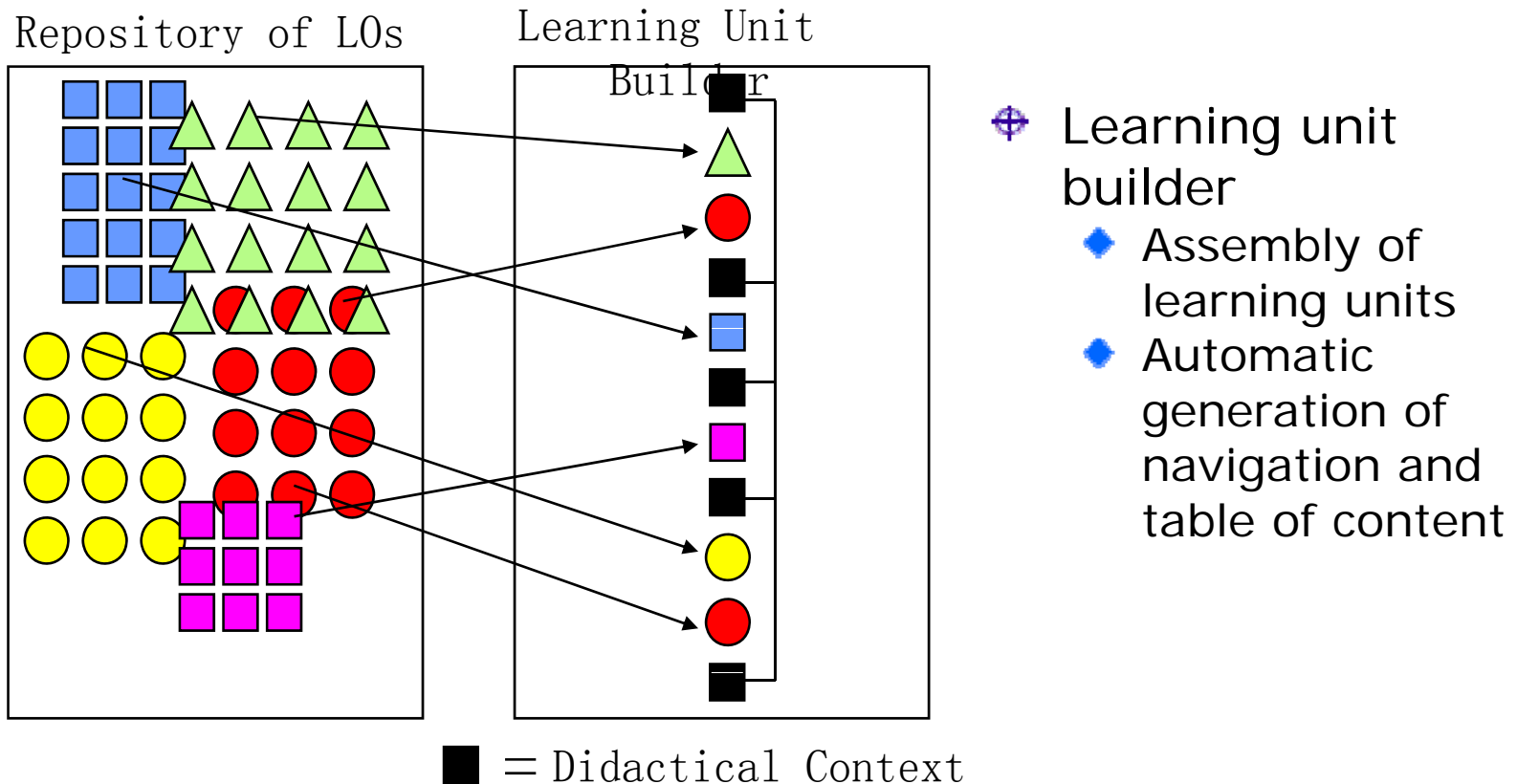
dLCMS Architecture

Repository of L0s

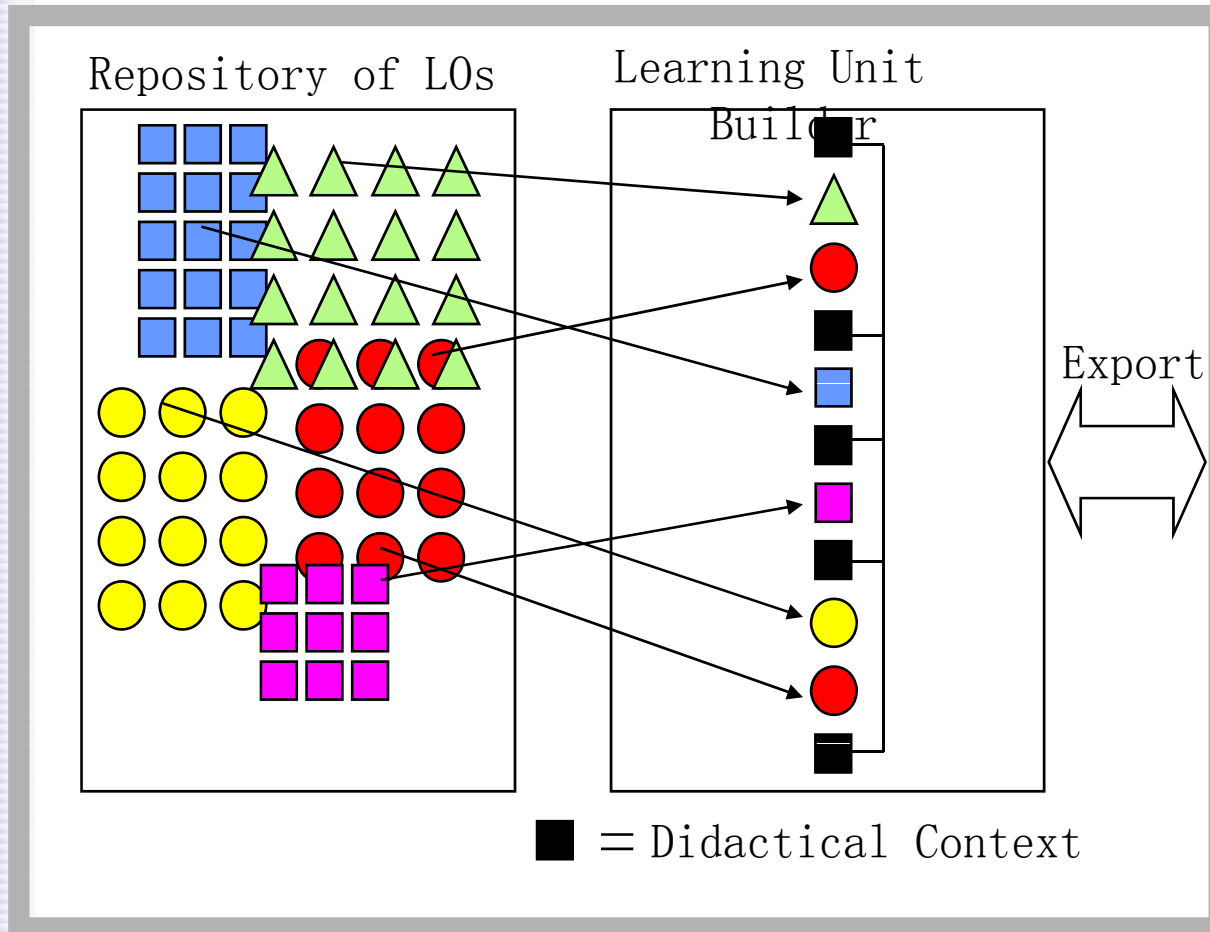


- ⊕ Centralized repository
 - ◆ Collaborative use of learning objects
 - ◆ Flexible retrieval of learning resources
- ⊕ Authoring
 - ◆ Easy to use online editor for XML-based content
 - ◆ No programming skills needed

dLCMS Architecture



dLCMS Architecture



⊕ Learning Units are *published* as:

- ◆ Web
- ◆ LMS online courses (SCORM)
- ◆ Paper-based lecture notes (PDF)

⊕ Coherent layout and styling with templates

*d*LCMS Implementation

- ⊕ No existing LCMS accessible
- ⊕ Development based on the Silva/Zope open-source CMS
- ⊕ Implementation as an Silva extension product
- ⊕ Prototype:
 - ◆ Online editor
 - ◆ Centralized repository
 - ◆ Learning unit builder
 - ◆ Flexible layout and graphical designs through style templates
 - ◆ Export function as static web-site

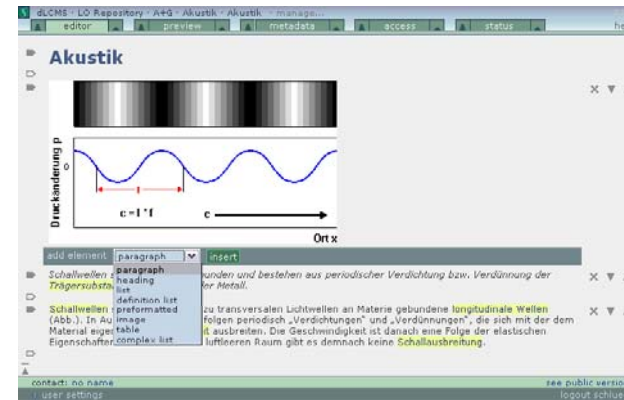
Demo

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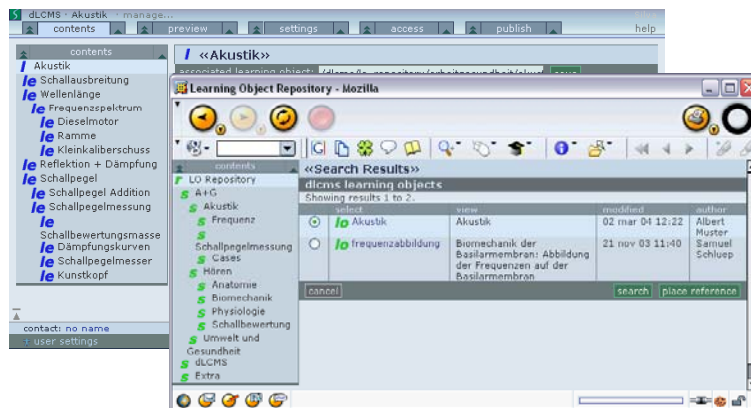
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  Verdichtung bzw. Verdünnung der
  <index name="Trägersubstanz">Trägersubstanz</index>
  , wie z.B. Luft oder Metall.
</em>
</p>
- <p type="normal">
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sind im Gegensatz zu transversalen Lichtwellen an Materie gebundene
<index name="Wellen, longitudinal">longitudinale Wellen</index>
(Abb.). In Ausbreitungsrichtung folgen periodisch „Verdichtungen“ und
„Verdünnungen“, die sich mit der dem Material eigenen
<index name="Geschwindigkeit">Geschwindigkeit</index>
ausbreiten. Die Geschwindigkeit ist danach eine Folge der elastischen
Eigenschaften des Materials. Im luftleeren Raum gibt es demnach keine
<index name="Schallausbreitung">Schallausbreitung</index>
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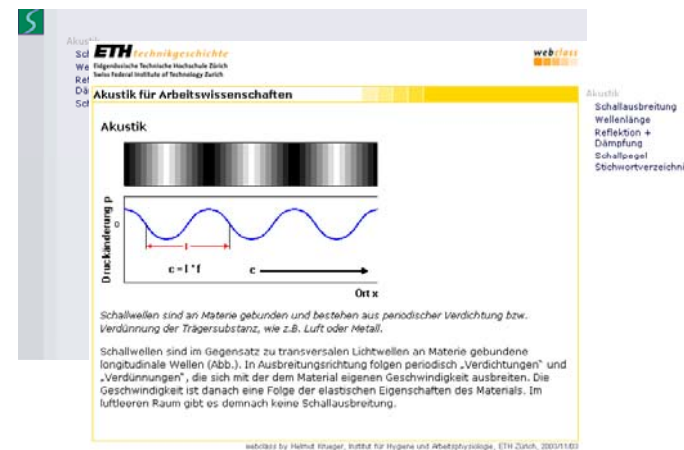
XML-based content structuring



Online-editor



Learning unit builder



Flexible graphical Design

Conclusions

- ⊕ **dLCMS** offers small modular building blocks and XML-based structured content
- ⊕ Authors can concentrate on content instead of programming languages
- ⊕ Flexible layout and graphical designs through style templates

Thank you for your
attention

Samuel Schluep
Institute for Hygiene and Applied Physiology
ETH Zürich
schluep@iha.bepi.ethz.ch