

# IMS Learning Design: What it is & Update on Current Activities

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# Content

- Introduction into IMS LD
- Update on current international activities

# What Vision Drives the LD Activities

How can we improve the pedagogical quality of e-learning courses in an interoperable way with user-friendly tools?

# What is LD?

- eLearning 'Standard' published by the IMS consortium in February 2003
- Based on Educational Modelling Language (EML) developed at the OUNL
- MS LD replaces EML

**Information  
Model**

**Best Practice  
Guide**

**XML  
schema**

# Why LD?

- get rid of **proprietary** non-interoperable solutions
- get rid of the **oversimplified** technological driven views of learning/teaching, eg. learning is consuming sequenced learning objects
- extend the possibilities of e-learning: **new** more effective, efficient & attractive **learning models** (active learning, problem based, ...)
- **integrate** the large number of isolated existing standards (LOM, CP, QTI, RCD, LIP, ..) to create executable units of learning ('courses')
- Support automation of the **workflow** in the teaching/learning process to decrease workload

# What it does...

- model different kinds *pedagogical models* (behaviourist, cognitivist, social-constructivist)
- describes **all** processes, content and services within a course in an interoperable way
- supports **personalisation** of learning activities
- supports **reuse** of (components of courses)
- supports **multi-role workflow** within teaching/learning

# Which standards are Integrated in LD

- Metadata specifications like LOM or Dublin Core
- IMS Content Packaging
- IMS Question and Test interoperability spec.
- IMS Reusable Competence Definition
- IMS Simple Sequencing
- IMS LIP can be used to define property definitions

# Relationship IMS LD with SCORM

## SCORM

- One Pedagogical Approach (sequenced learning objects)
- No ePortfolio and advanced testing possibilities
- Single user (learner)
- No workflow support
- No personalisation or adaptive approaches possible
- Problems with QTI integration
- No services integrated

## IMS Learning Design

- Different pedagogical models
- ePortfolio & new assessment types integrated
- Multiple interactive users
- Automation of workflow
- Personalisation and adaptation are supported
- QTI integrated
- Services integrated (search, forums, mail, etc.)



# Does Power and Flexibility has a Price?

- LD is a more complex specification
- Runtimes and authoring environments are harder to build
- US military provides yearly financial support for SCORM adaptation (EU only restricted amount of money for LD adapatation)
- However: it does what we need in education and training!

# How it works...

## Basic Ideas

- Create a standard course notation (like music)
- Only design is captured, not the runtime (to make it reusable)
- Complete description of workflow, content, & services in a course
- Pedagogical meta-model:|

**ROLE performs ACTIVITIES using RESOURCES**

# Like a script of a Theatrical piece

Doric Wilson's

**STREET THEATER**  
in two acts

Stonewall 1969

Roles for this fragment:

- MURFINO, a thug
- JACK, heavy leather, keys left

## Act One

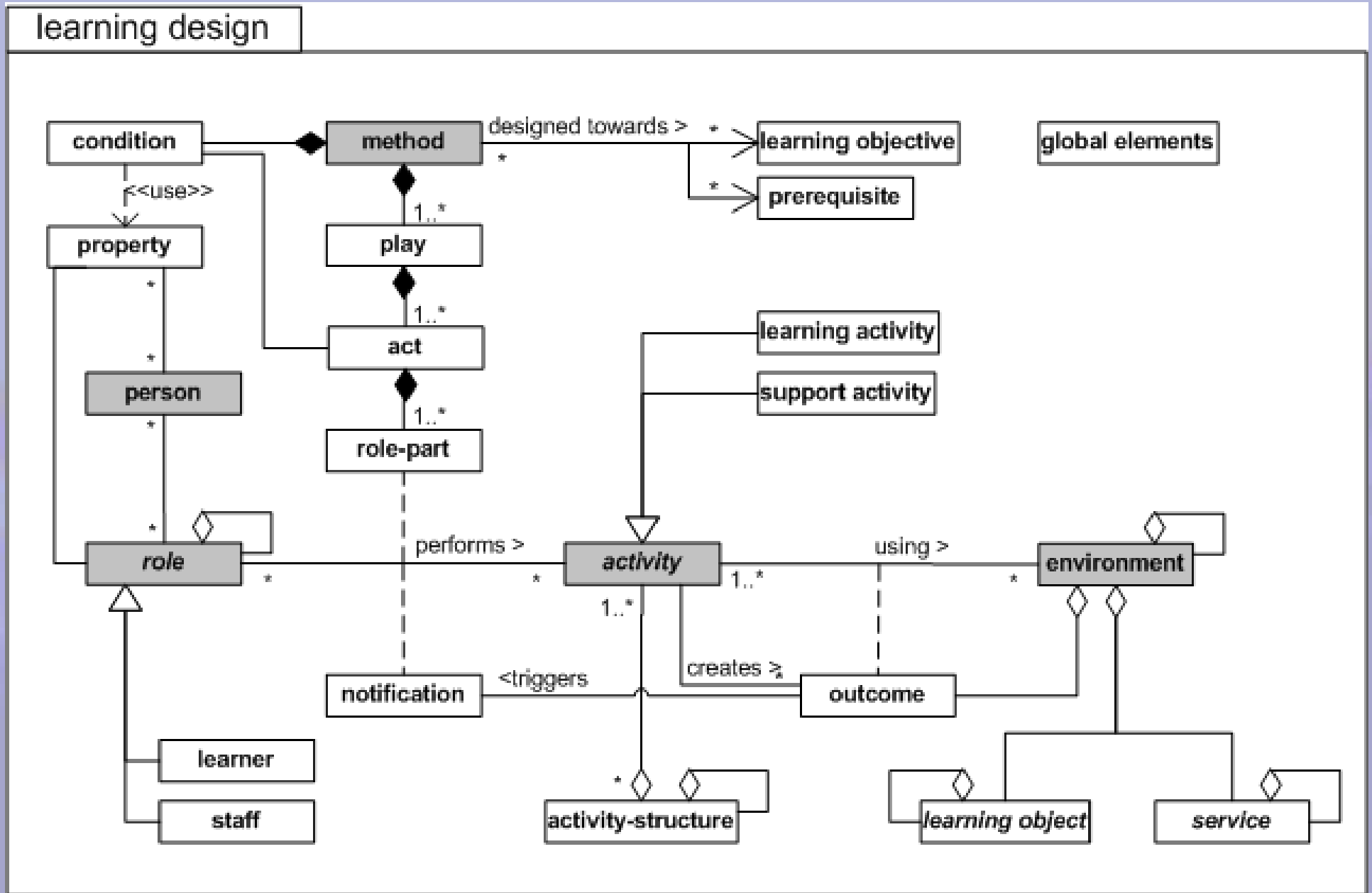
(No curtain. No scenery. The audience, arriving, sees an empty performance space in half-light. The sound system plays a medley of up beat golden oldies from the late sixties, ending with the Lovin' Spoonful's *Summer in the City*. MURFINO, a thug, enters through the audience carrying a battered garbage can.)

MURFINO: (To the audience, an unauthorized prologue.) Hot enough for you? They say we got another week of heat wave. (As he wipes his brow.) This play is all about this bunch of lowlifes. Juicebums, hopheads, weirdos, oddballs, queers—what you call your "artistic element." The usual gutter crud you got to expect to contend with down here in Greenwich Village.

# What do you see?

- Metadata (title, author, in two acts)
- Roles (Murfino, Jack)
- Acts (Act I, etc.)
- Setup of Environment (music, no scenery)
- Role-parts (Murfino: Hot enough for you?)
- Sequence of activities (reading order)
- Conditions (if ... then ...)

# IMS LD Structure



**Title:** Beginning of the Year or Semester Review for returning students

Primary Subject: Language Arts - Spanish; Grade Level - 6-8

General Goal: Student will be able to converse with peer in target language as a way of reviewing previously learned material.

**Required Materials:**

- Textbook (*Ven Conmigo*), - Lined Paper, - Name sticks (for random pairing)

**Anticipatory Set (Lead-In):**

Show scene from accompanying video series that models student conversation. Discuss how at the end of the course last year, all students were able to converse like this.

**Step-By-Step Procedures:**

Students should be assigned partners by random pairing of name sticks.

Students should begin by reviewing key phrases and verbs. They should do this in pairs using a read and quiz method.

To reinforce the review, students should write an outline of what they'd like to say in their conversation, either as homework or in the next class. When students have completed their outline, they should create a realistic conversation.

After they have completed their conversation, the students should check with the teacher before memorising the dialogue. Any mistakes should be brought to the students' attention. Once correct, memorisation and practice should begin.

Once memorised, the conversation should be performed before the class.

**Closure (Reflect Anticipatory Set):** If lessons are videotaped, students may watch their videos and compare them to the series that accompanies the book.

**Assessment Based On Objectives:** Students may be graded using a rubric based on objectives or be given narrative

**Feedback:** Students could also use their own videos as a self-assessment tool.

## LEARNING DESIGN METHOD

### Metadata:

Title: Beginning of the Year or Semester Review for returning students

Primary Subject: Language Arts, Spanish;

Students: Grade Level - 6-8

Setting: classroom, students grouped in pairs

Learning Objectives: Student will be able to ....

### Play:

Act I

(Anticipatory Set):

Teacher: Show scene from accompanying video series... (video set)

Act II

(Step-by-step procedure):

Sequence:

1. Teacher: Assign students in random pairs, using name sticks... (name sticks)
2. Student: Review key phrases and verbs....(*Ven Conmigo*)
3. etc.

Act III

(Closure)

Teacher: Grade students (score system) OR

Student: use video to carry out self-assessment (video)

### Conditions:

*IF* conversation is complete *THEN* students check with the teacher before memorising.

*IF* teacher wants to grade *THEN* students do not carry out self-assessment.

Etc.

# Roadmap for LD implementation

- a. Specification (febr. 2003)
- b. Awareness raising (febr. 2004)
- c. First generation tools (febr.2005)
- d. Demonstrators (during 2005),  
usability improvement of tools, and  
application profiles and conformance testing
- e. Development of community of users  
(from 2006)



# Valkenburg Group

- Ad hoc community of persons interested in developing tools for IMS LD incl. R&D issues
- European partners in Valkenburg are now funded by EU (UNFOLD project)
- Tool development projects (Reload, etc.)
- Test suite/application profiles for LD (Telcert)
- February 2004: group wrote chapters of Springer Book Learning Design
- During the Unfold period, we invite non-europeans to participate in co-organized Valkenburg meetings.

# Status of Tool Development

- Reload editor (Level A editor Nov. Preview in CopperCore)
- Alfabet level C editor and player (June 2005)
- Lams (Level A editor + player (mid 2005)
- CopperCore Engine (Level C LD Engine dec)
- eLive Visual LD Editor (level B, nov).
- Chronotech level A LD/EML editor (nov)
- Service Based Learning Design System  
OUNL/BOU JISC (Nov)
- MOT+ input/output filters (?)
- Edubox (EML 1.1)



# understanding new frameworks of learning design

A Sixth Framework IST European Project

<http://www.unfold-project.net>

- **Main Partners**  
UPF, JISC/CETIS, EUCEN and OUNL
- **Focus of UNFOLD?**  
Adoption of IMS Learning Design
- **Target Group**
  - Systems Developers
  - Learning Designers
  - Teachers and Learning Providers
  - PhD students working on LD or EML



# understanding new frameworks of learning design

A Sixth Framework IST European Project

## Major Activities

- Setup of CoPs for every level of target group
  - support for tool developers (installation CD)
  - support for learning designers (demo materials)
  - support for providers (through EUCEN)
  - support for PhD students in LD
- Setting up (a pilot) Learning Network for Learning Designers ([In4ld.learningnetworks.org](http://In4ld.learningnetworks.org))
- Organization of Conferences, workshops, etc. incl. Valkenburg Group Meetings
- Publication and dissemination activities

# Book of Valkenburg Group (2005)

**Rob Koper** is professor of Educational Technology and director of learning technologies R&D at the Educational Technology Expertise Centre (OTEC) of the Open University of the Netherlands. He was one of the driving forces for the development of the IMS Learning Design Specification.

**Colin Tattersall** works as an educational technologist at The Open University of the Netherlands, where his responsibilities cover innovation in e-learning, learning technology standardization and the coordination of the "Valkenburg Group".

#### Features and Benefits

- ★ Description of the IMS Learning Design Specification
- ★ Roadmap for approaching the specification for different audiences
- ★ How-to guides for using the specification to create interoperable e-learning processes
- ★ Examples of the use of learning design in production processes

Koper · Tattersall (Eds.)

Rob Koper  
Colin Tattersall (Eds.)

## Learning Design


E-learning is still in its infancy. This can be seen in the both in the limited pedagogical quality and lack of portability of e-learning content, and in the lack of user-friendly tools to exploit the opportunities offered by current technologies. To be successful, e-learning must offer effective and attractive courses and programmes to learners, while at the same time providing a pleasant and effective work environment for staff members who have the task to develop course materials, plan the learning processes, provide tutoring, and assess performance.

To overcome these deficiencies, the IMS Global Learning Consortium Inc. released the Learning Design Specification in 2003. With Learning Design it is possible to develop and present advanced, interoperable e-learning courses embracing educational role and game playing methods, problem-based learning, learning community approaches, adaptivity and peer coaching and assessment methods.

In this handbook Koper and Tattersall have put together contributions from members of the so-called "Valkenburg Group", consisting of 33 experts deeply involved in e-learning and more specifically learning design. The result is a rich and lasting source of information for both e-learning course and tool developers, providing information about the specification itself, how to implement it in practice, what tools to use, and what pitfalls to avoid. The book not just reports first experiences, but additionally goes beyond the current state of the art by looking at future advancements and innovative applications.

ISBN 3-540-22814-4



 [springeronline.com](http://springeronline.com)



Learning Design

# Learning Design

A Handbook on Modeling and  
Delivering Networked Education  
and Training

 Springer

# TELCERT



## Technology Enhanced Learning: Conformance - European Requirements & Testing





# Key Aspects of the Project

- A Model for Conformance
- Application Profiles
- Application Profiling Tool
- Content Re-Engineering Tool
- Testing Technology Research
- Test Suite Architecture
- Key Deliverables
- Outreach Workshops

# LD RTD

- Work of PhD students (see dspace server), mostly on extensions or implementations
- Work on LD automatically generated, reusable LD patterns
- Validation of pedagogical expressiveness requirement =>



# Validation

- lesson plan sites (merlot, eric lesson plans, etc.)
- random selection of 16 lesson plans
- Expert designers:
  - expert analysis: judge how difficult to model
  - document analysis
  - created LD files and noted problems
- a. do the three methods differ?  
b. possible to create the LD?  
c. difficulties?

# selected lesson plans

- 1 Pizzaz!...tongue twisters**
- 2 Lincoln's secret weapon**
- 3 Jazz and Math: Rhythmic Innovations**
- 4 Considering copying**
- 5 The darien adventure**
- 6 Carnival safety success**
- 7 Exploring disability**
- 8 Ecosystems and Well-Being**
- 9 Kermit the hermit**
- 10 Inventions**
- 11 Cracking dams**
- 12 The Works Progress Administration and the New Deal**
- 13 Learning microsoft excel 2000**
- 14 How do people express their faith through the arts?**
- 15 Eyes in the Sky**
- 16 A Pittsburgh Memory, A Memoir Study Focusing on Location**

# Outcome

- All could be modelled in LD
- different categories (behaviourist, cogn., soc. constructivist)
- identification of easy/difficult parts, e.g. difficult (but possible) is dynamic grouping
- .... still working on it

# Events

- Unfold/Surf Six meeting Heerlen October
- Unfold LD Workshop Kaunas November
- LD Workshops etc. Online Educa Berlin Dec.
- Plugfest LD tools Heerlen Febr 2005
- Online chat events every month
- ...

# Thank You!

- [www.unfold-project.net](http://www.unfold-project.net) (Unfold)
- [In4ld.learningnetworks.org](http://In4ld.learningnetworks.org) (Learning Network for Learning Design)
- [www.coppercore.org](http://www.coppercore.org) (sourceforge)
- or: [rob.koper@ou.nl](mailto:rob.koper@ou.nl)