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# Modelling Collaborative Learning Activities: LDL, a interaction-centred metamodel

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Christian Martel



Université de Savoie

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# State of the Art

## Learning Design

« capability of designing units of learning that simultaneously include several roles, each of which can be played by several actors. »

[IMS Learning Design Best Practice and Implementation Guide]

# IMS-LD

- A specification used to describe learning scenarios
- A specification used to describe a wide variety of pedagogical models
- Including collaborative learning
- Provides a high level language that can describe many different models.
- How People, activities and resources (materials and services) are coordinated into a learning flow.

# IMS-LD problems

- Too complex for teachers, particularly with properties (ad hoc)
- Too poor for realistic pedagogical situations
- No observational level for assessment
- Services and learning Objects considered as black boxes
- No cooperation seems possible without CSCW tools
- Historical motivated three levels (A B C)
- Hard to experiment in the large
- Hard to use with CooperCore/Reload

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# Learning Design Language (LDL)

**Learning Design Language** relies on a *small number of elements*.

These include:

- **Roles** that people perform (who do what);
- **Interactions** (what they do with who);
- **Arena** which include where they do them;
- **Structures** to describe the learning flow (sequential, alternative, selection);
- **Positions** expressed by learners/agents to make choice;
- **Rules** on interaction or structure;
- **Observables** as structured trails of activities.

# What is LDL for ?

## The main things :

- Describe and implement cooperative learning activities based on different pedagogies, **and not just including** group work and collaborative learning as tools;
- Describe **organization level and cognitive level** with the same specification
- Coordinate multiple learners and multiple roles **and multiples Activities (it's life)**;
- Describe and implement **assessment** like activities with the same specification;
- Support scenario generation **“in action”** (reflexivity).

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# What is LDL for ?

## **The essential things :**

- Transfer of learning designs between teachers.
- Reuse of learning designs and materials.
- Reuse of parts of a learning design
- Transparency of services and learning objects
- Simplicity of activities models
- Linking organization level and cognition level
- Scenarios in long life cycle (one year)
- Scenarios with an important number of participants (12000)

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# LDL results

## First technical results :

- A Meta-Model ;
- The XML binding ;
- An Standalone Editor (ModX based / Trigone)
- A Web Player (Java + Html)
- A Rule engine
- A Gateway for “The Electronic SchoolBag” and for Plone



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# ICALT 2006

## Workshop

### **“Comparing Educational Modeling Languages on a case study”**

All the participants will work on the same single case in Life-Long Learning, in accordance with the topic of the 2006 edition of ICALT

*... to share and confront models and approaches through modeling experiences of collaborative learning activities starting from a real situation to be modeled and ending at the implemented activity on a learning platform.*

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# ICALT 2006

## **The context of the case study**

The chosen activity is part of a real **lifelong learning scenario** in astronomy. The students have the same problem to solve.

They are grouped into two teams.

Each team has only a part of the knowledge and data required to solve the problem.

So, they must collaborate.

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# ICALT 2006

## **The proposed activity**

The activity objective is for learners to acquire knowledge in the field of astronomy.

More precisely, they have to classify the planets with respect to their distance from the Sun (from the nearest one to the most distant).

The teacher also wants the learners to work together, to adopt a work method and to negotiate with their peers.

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# ICALT 2006

## **The proposed activity**

The strategy used by the teacher to reach these objectives is to propose a game for the learners. The latter are grouped into two teams (Team A and Team B).

Resources and services will be available to help the learners in acquiring new knowledge, in exchanging with their team members, and in negotiating.

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# ICALT 2006

## Step 1

- Modeling of this activity
- Operationalisation and execution of the model on a platform

## Step 2.1

### **Observation**

- How could the activity be observed by the teacher ?
- How could these observations be used by the teacher ?

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# ICALT 2006

## Step 2.2

### Trails

- Does the activity's performance produce trails ?
- How could these trails be used?

## Step 2.3

### Re-use/adaptation

- How could the case study be adapted for a different topic ?
- What has to be done to adapt the structure of the case study ?

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# ICALT 2006

## **workshop participants**

James Dalziel, University of Sydney,

Aude Dufresne, Université de Montréal,

Jean-Pierre David, Anne Lejeune, CLIPS-IMAG, France,

Yannis Dimitriadis, Davinia Hernández-Leo, University of  
Valladolid,

Christine Ferraris, Laurence Vignollet, Université de Savoie, France,

Christian Martel, Pentila corporation, France,

Thierry Nodenot, Université de Pau, France,

Gilbert Paquette, LICEF, Canada,

Eduardo Sanchez, University of Santiago de Compostela,

Colin Tattersall, OUNL, The Netherlands.

# LDL applications



Active Digital Library (GA-Media, OAI-PMH based)



Scenarios for University Assessment Center (Université de Savoie, IMS-QTI based)



Experiment deployment in the Shared Virtual Laboratory (Kaleidoscope)



# Contacts



Pentila  
[www.pentila.com](http://www.pentila.com)  
christian@pentila.com



Laboratoire SYSCOM  
<http://www.syscom.univ-savoie.fr/>  
bernard.caron@univ-savoie.fr



Laboratoire CLIPS  
<http://www-clips.imag.fr/>  
jean-pierre.peyrin@imag.fr  
jean-pierre.david@imag.fr