Learning Design Summit
OUNL- November 8, 2006

Learning Design: the "French touch"

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Overview

- A certain French position about learning and teaching
- Research questions addressed by the French community around learning design
- Some French representative works
- Discussion and perspectives
A "specific" French position

About learning
- Learning is effective only if learner could act quite freely
- Importance of socio-constructivist approaches

About teaching
- Teacher's traditional pedagogical autonomy
- Historical importance of pedagogical movements
  - Celestin Freinet
ICT and education in France

- Many researchers in TEL have been teachers in primary and secondary schools
  - Importance of teacher's point of view
  - Focus on blended learning (vs distant)

- Importance of adaptive features and didactical approaches

- Special interest on constructivist learning situations (PBL, CSCL)
Consensus about main key points (1)

- A core concept: the learning scenario
- Scenario lifecycle:
  - design, operationalization, execution
- Design not only reserved to computer specialists and instructional engineers
  - Imply closely teachers in design process
- Importance of adaptation
  - At runtime: prescribed task / observed activity
  - For reuse: prescribed scenario / effective unfolding
Consensus about main key points (2)

- A variety of learning design languages adapted to different needs
- Influence of learning design on VLE engineering
- Wish to share selected "full scale" use cases for benchmarking
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French main teams implied in LD

Consortium

+ Connections with Francophone area: Switzerland, Belgium, Canada
Shared French questions about IMS LD

■ Too complex for designers?
  - Historical organization in 3 levels
    ■ not conceptually justified, to be refined
  - Properties hold different concepts

■ Not originally adapted to CSCL?
  - cooperation is relegated to "services"

■ Theatrical metaphor too constraining?
Overview

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Some French representative works (since 2000) developed in parallel with IMS LD

- Modelling of learning scenarios
  - Scenario lifecycle
  - languages
    - Different levels of languages, applying MDE approach
    - Modelling for Cooperative Problem-Based Learning Situations:
      - Modelling for Collaborative Learning Situations : LDL
  - Authoring approach and editing
- Scenario operationalization
- Scenario execution

A quick overview
Modelling: scenario lifecycle

Design Loop

1. Initial design
2. Pedagogical implementation
3. Technical implementation

Adaptation Loop

4. Run
5. Evaluating
6. Adaptation
7. De-contextualizing

Reuse Loop

- Scenario pattern
- Abstract scenario
- Contextualized scenario

Scenario pattern
Modelling: different levels of languages

CAUSA PROJECT

Teachers and trainers

Instructional designers

LMS and programmers

Example

Specific job-oriented languages and authoring tools

Modelling language

Notational language

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Modelling of Problem-Based Learning Situations: CPM

- Focuses on modelling didactical choices
  - Learners knowledge
  - Tutoring strategies
- Supported by a toolset
  - CPM profile: a UML profile
  - Use case diagrams, Class diagrams, state charts, activity diagrams, object diagrams
- Computable specifications
  - Transformations into IMS-LD compatible code
Modelling of Cooperative Learning Situations : LDL

- A Meta-model, interaction centered, defining few concepts to express a lot of collaborative situations

- **Scenario** (the container of all elements)
- **Roles** held by people
- **Interactions** between roles
- **Arenas** where (and with which) interactions are done
- **Structures** to describe the learning flow
- **Positions** expressed by learners/agents
- **Rules** on interactions or structures
- **Observables** as structured trails of activities
LDL: Interaction-based

interaction-based

rules

role

addresser

addressee

Interaction

arena

takes place in

has for result

Position

< Expressed by

Expressed on

1..* 0..1 0..1

0..* 1

rule

implies

checks

Position

< Expressed by

Expressed on

Declared

Observed

Observable

Declared

Observed

Observable

Bounded with

0,1

1

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Modelling for Cooperative Learning Situations: LDL

- **Main characteristics:**
  - Few concepts
  - Prescription of the adaptation and the regulation using positions and rules
  - An associated graphical language
  - Some realizations
    - Integration with IMS-QTI (Shared Virtual Laboratory – Kaleidoscope)
    - Planet case study
  - A methodology
Modelling of Cooperative Learning Situations: LDL

A Methodology

Observation Activity $A_{Obs1}$
Learning Activity $A_{Learn1}$
Learning Activity $A_{Learn2}$
Assessment Activity $A_{Eval}$

Organizational activity $A_{Org}$

Learner
Teacher

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Authoring approach and editing: ModX

- ModX is a graphic tool used to create both model and MOF-based metamodel
- IMS-LD and LDL available
- Download: http://noce.univ-lille1.fr/projets/ModX/index.php
Authoring approach and editing: ModX
Some French representative works

- Modelling of learning scenarios
- Scenario operationalization
  - Infrastructures
  - Deployment towards LMS
- Scenarios execution
Scenario operationalization: GenDep

- Operationalization (no control during execution)
  - From model to deployment to obtain the specified learning environment
  - Use the MDA principles
Scenarios operationalization: LDI
Learning Design Infrastructure

- Scenario operationalization
  - Initialisation (Who ? Where (with What) ?)
  - Deployment
    - Instantiation
    - Configuration

- Execution
  - Player
  - rule engine
  - trails module

Id.pentila.com
Some French representative works

- Modelling learning scenarios
- Scenario operationalization
- Scenario execution
  - Activities, tracks and observations
  - Monitoring activities
Executing scenarios: tracks and observations

MDA principles
Executing scenarios: Monitoring activities

- Example of FORMID: student's and class progress

Demo room
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Possible subjects of collaboration with IMS-LD community

- -> standard -> Innovation -> improved standard
- Integrate LD approach in academic context
- Authoring approach applied to LD
- MDE applied to Learning Design process
- Specific models for collaborative learning design
- Deployment towards LMS
Possible collaborations with IMS-LD community

- A proposition?
  - Build in each country a LD consortium
  - Projects with national funding
  - Collaboration between consortia

- Participation to TEN COMPETENCE?
Next events

- International conference Scenarios 2007
  - Organization LICEF/CIRTA with INRP
  - May, 14 & 15th 2007 in Montreal, Canada

- Workshop ICALT 2007
  - July 18-20, 2007, Niigata, Japan
  - A new case study
ANY QUESTIONS?