

# The future of the IMS Learning Design specification: a critical look

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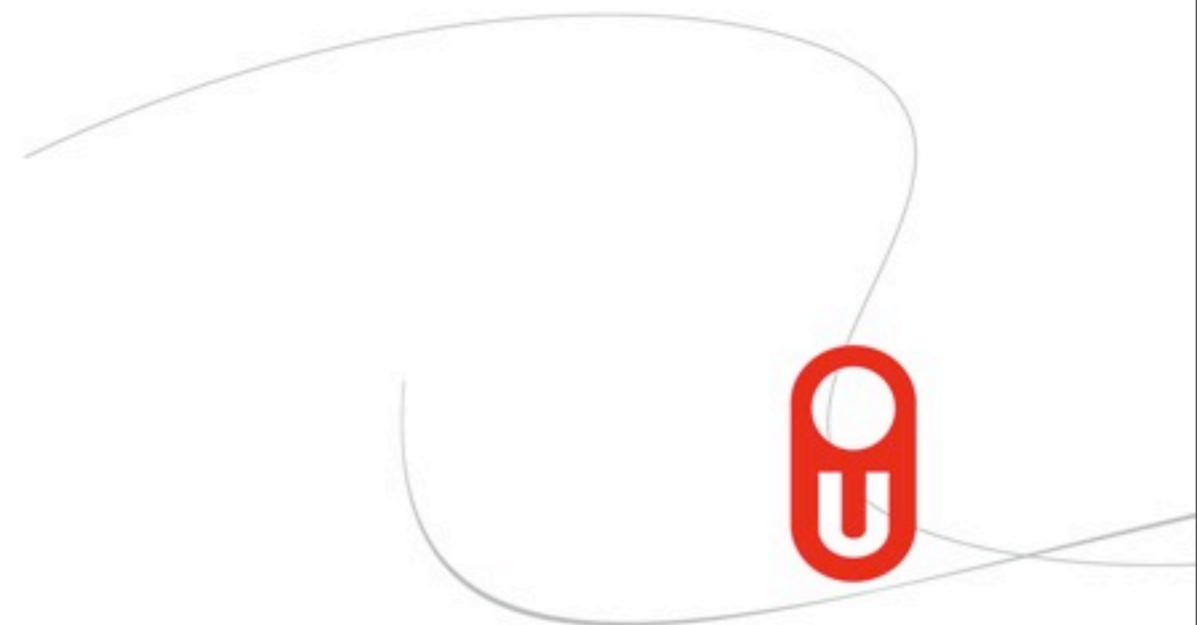


# Overview

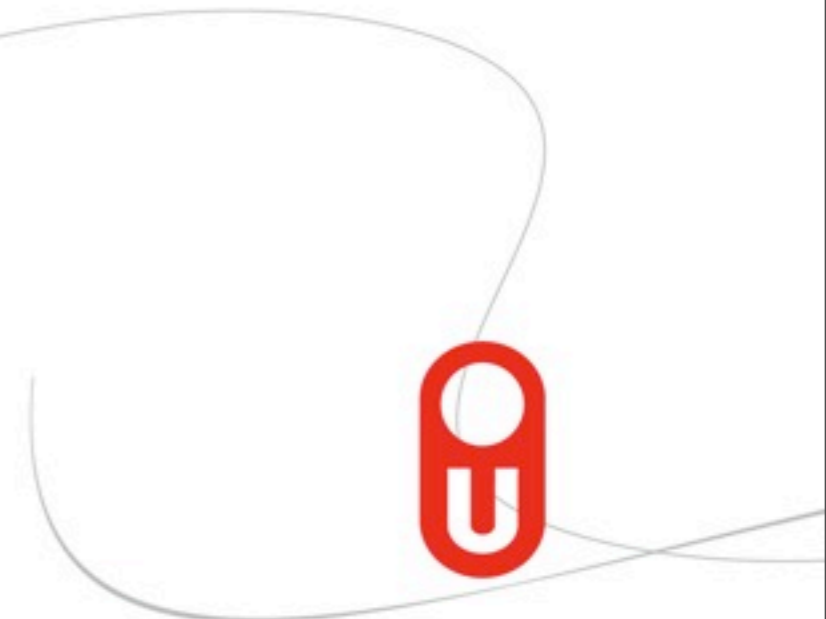
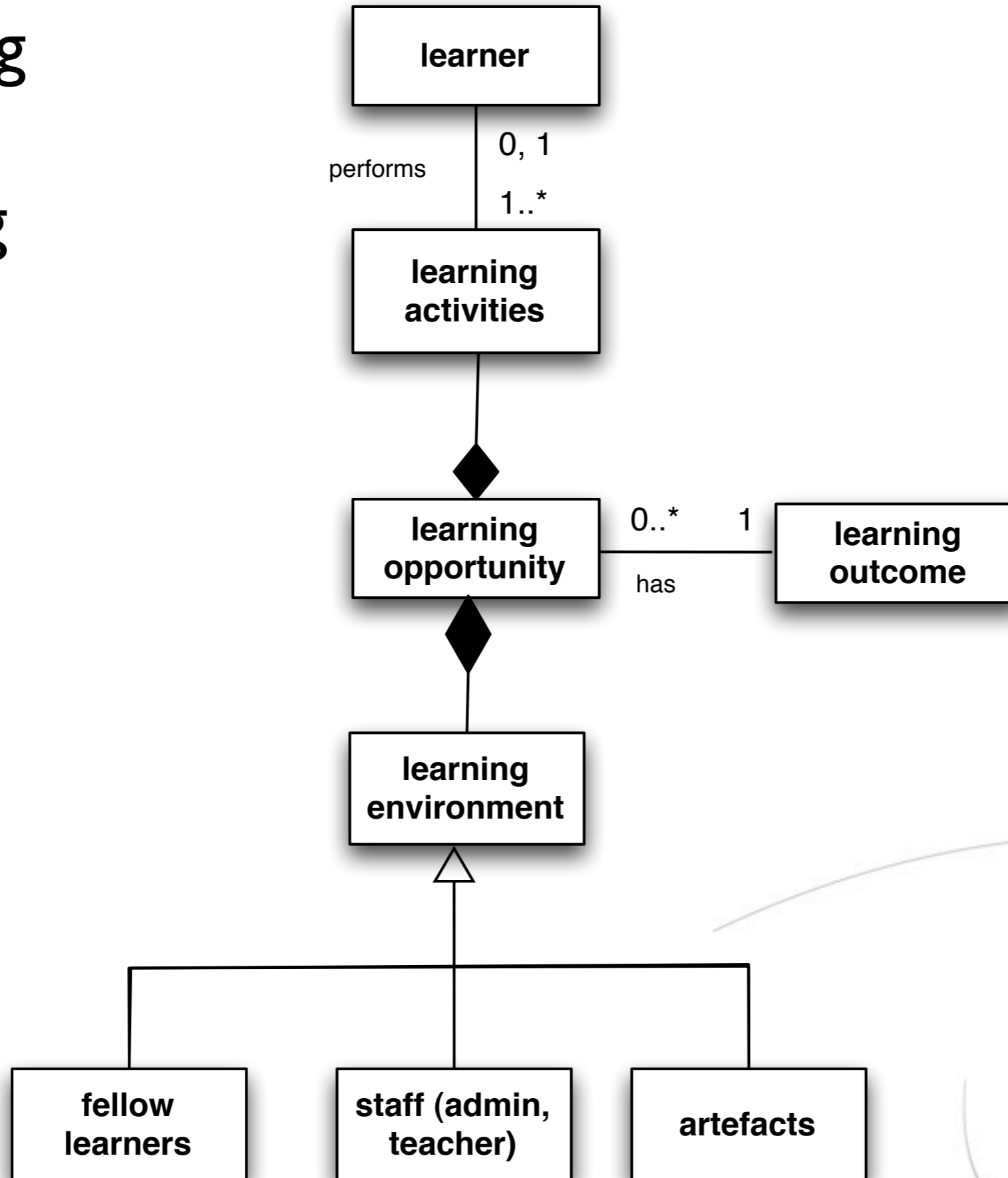
1. Designing for learning and Learning Design
2. Past: strengths & weaknesses of LD
3. Future: threats to & opportunities for LD
4. Conclusions



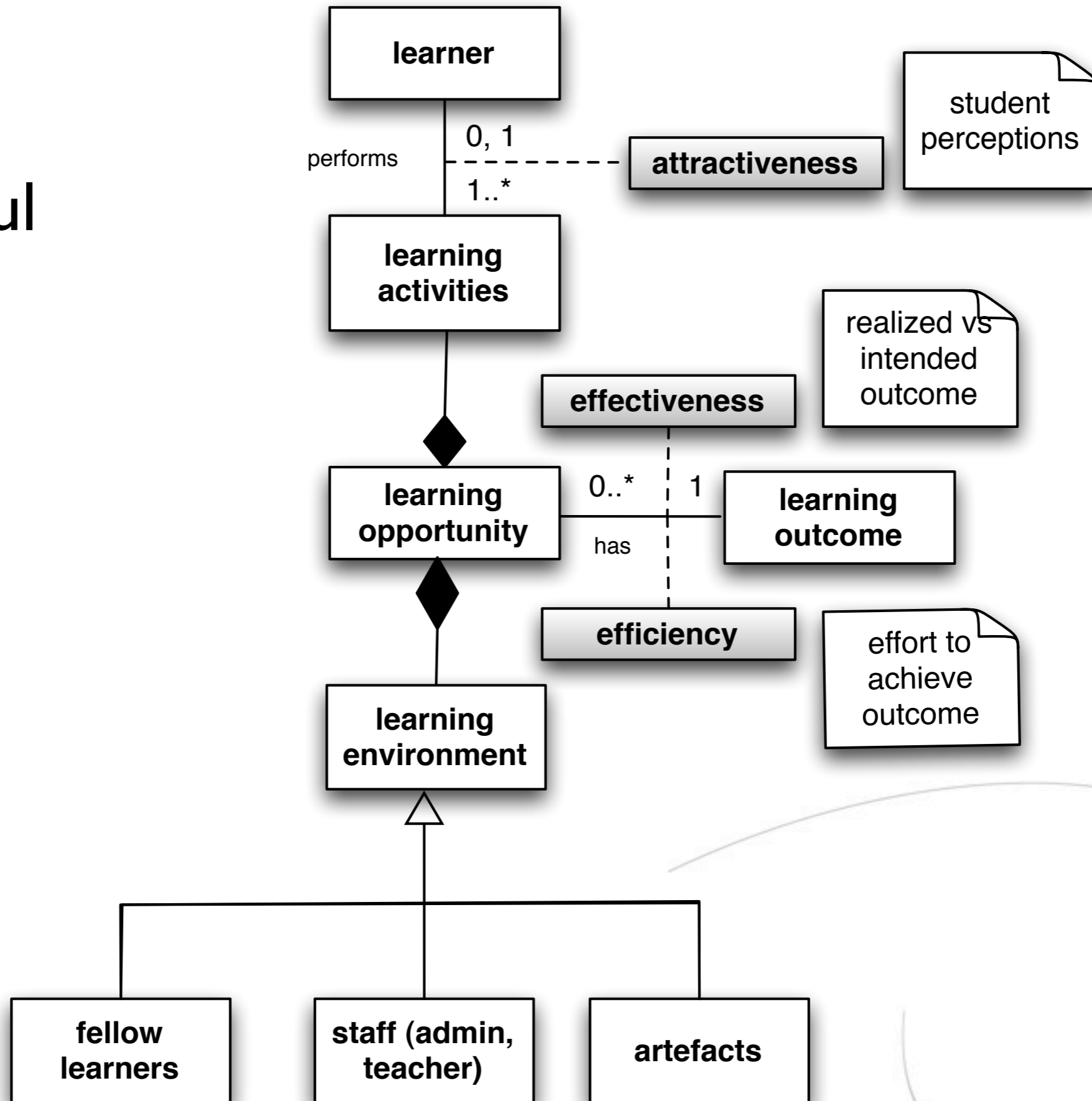
# | Designing for learning



# designing for learning



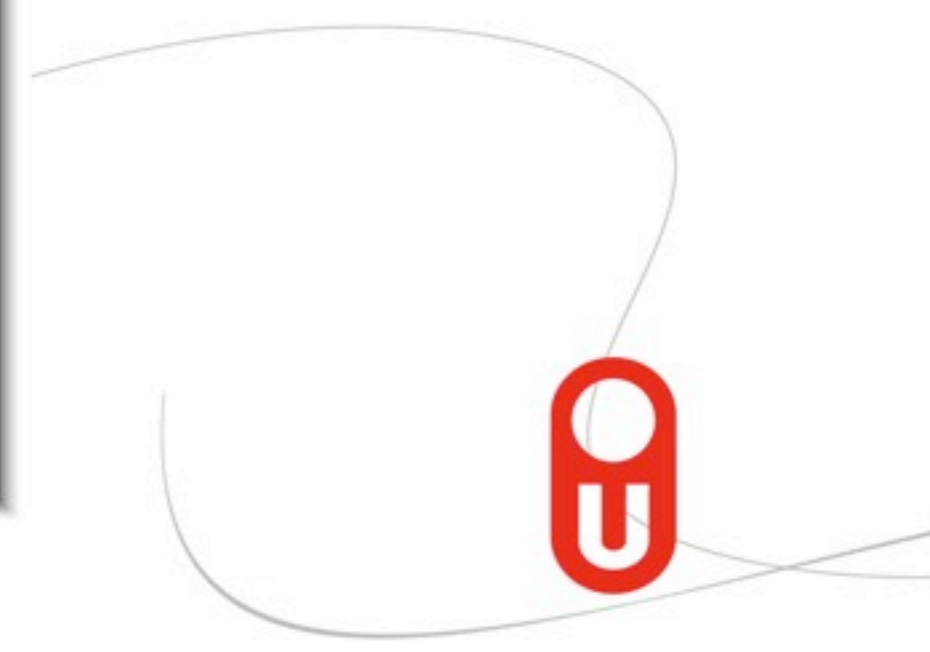
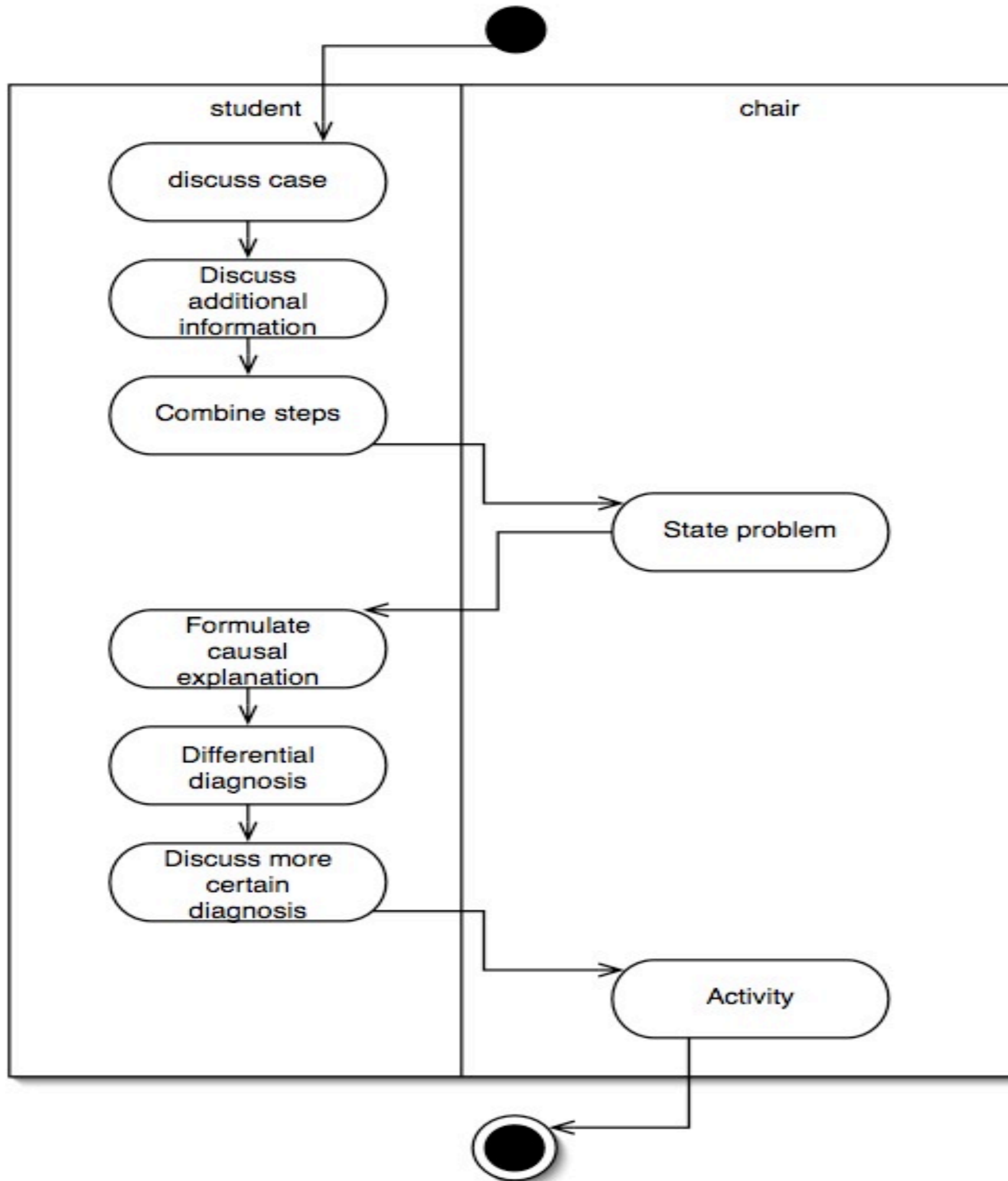
# criteria for successful designs



- there is ‘learning design’ (‘instructional design’) and ‘Learning Design’ (the specification)
- Learning Design is a means to the end of designing learning or instruction



design for  
problem-based  
learning case in  
medical education  
using a UML  
activity diagram



# IMS LD elements

```
|
learning-design
  title
  learning-objectives
  prerequisites
  components
  roles
    learner*
    staff*
  activities
    learning-activity*
      environment-ref*
      activity-description
    support-activity*
      environment-ref*
      activity-description
    activity-structure*
      environment-ref*
  environments
    environment*
      learning objects*
      services*
      environment-ref*
  method
    play*
      act*
        role-parts*
          role-ref
          activity-ref
  metadata
```



# IMS LD code bit

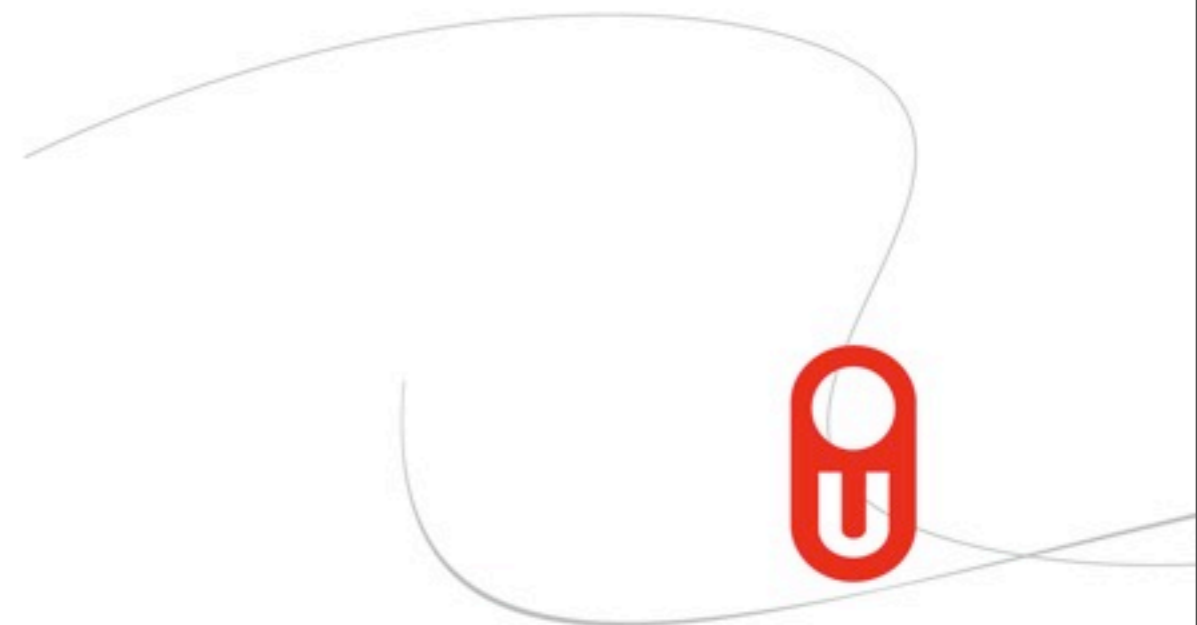
```
<?xml version="1.0" encoding="UTF-8"?>
<!-- edited by Colin Tattersall, adapted by Peter Sloep (Open University of the Netherlands) -->
<manifest xmlns="http://www.imsglobal.org/xsd/imscp_v1p1" xmlns:imsld="http://www.imsglobal.org/xsd/
imsld_v1p0" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:schemaLocation="http://
www.imsglobal.org/xsd/imscp_v1p1 http://www.imsglobal.org/xsd/imscp_v1p1p3.xsd http://www.imsglobal.org/
xsd/imsld_v1p0 http://www.imsglobal.org/xsd/imsld_level_c_v1p0.xsd" identifier="PBL-Manifest">
  <metadata>
    <schema>IMS Metadata</schema>
    <schemaversion>1.2</schemaversion>
  </metadata>
  <organizations>
    <imsld:learning-design identifier="Problem-Based-Learning" version="" level="C" sequence-
used="false" uri="">
      <imsld:components>

        <imsld:roles>
          <imsld:learner identifier="R-student"/>
          <imsld:learner identifier="R-chairperson"/>
          <imsld:staff identifier="R-facilitator"/>
          <imsld:staff identifier="R-coordinator"/>
          <imsld:staff identifier="R-evaluator"/>
        </imsld:roles>

        <imsld:properties>
          <imsld:globpers-property identifier="P-email">
            <imsld:existing href=""/>
          </imsld:globpers-property>
          <imsld:locrole-property identifier="P-Problem-Description">
            <imsld:role-ref ref="R-coordinator"/>
            <imsld:datatype datatype="file"/>
          </imsld:locrole-property>
          <imsld:locrole-property identifier="P-Problem-Statement">
```

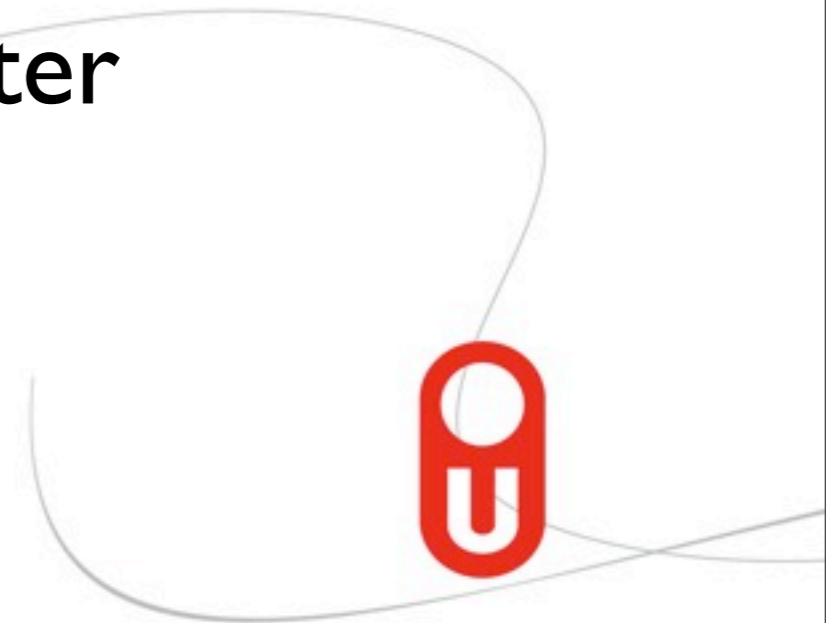


# 2 Learning Design



# OUNL

- was founded in 1984, meant to be 'open'
- having open access, no diplomas required
- allowing students to learn at any time, any pace, any place
- offering a 'second chance' to enter academia



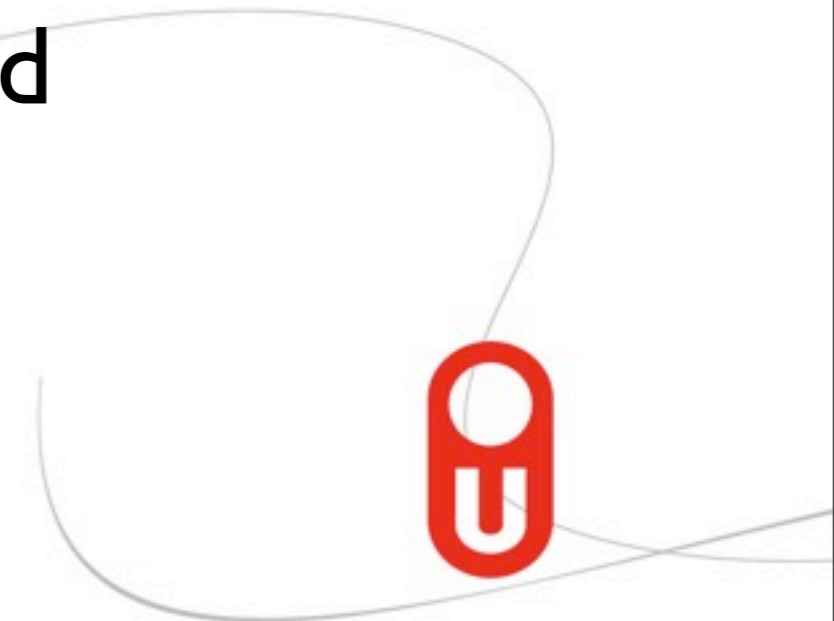
# Design consequences of being open

- explicit learning/instructional design of ‘guided self-study’
- very few residential sessions, ‘distance learning’
- industrial production mode, division of labour



# ‘Studienet’

- 1995: launch first VLE ‘Studienet’
- 1997: adoption of e-learning by board
- goal: demand for pedagogical richness
- boundary condition: remain as efficient as ever, increase effectiveness and attractiveness



# Educational Modelling Language

- 1997 -2000 development EML (open spec.)
- workflow specification ('learning flow')
  - scripting language for learning, theatrical metaphor
- formal language
  - explicit and closed vocabulary and syntax



# IMS LD

- 2001 - 2003 development of IMS LD, differences with EML:
  - no content module (advice: use XHTML)
  - no assessment module (use QTI 2.0)
  - three levels of complexity A, B, C
  - member of IMS family of specifications

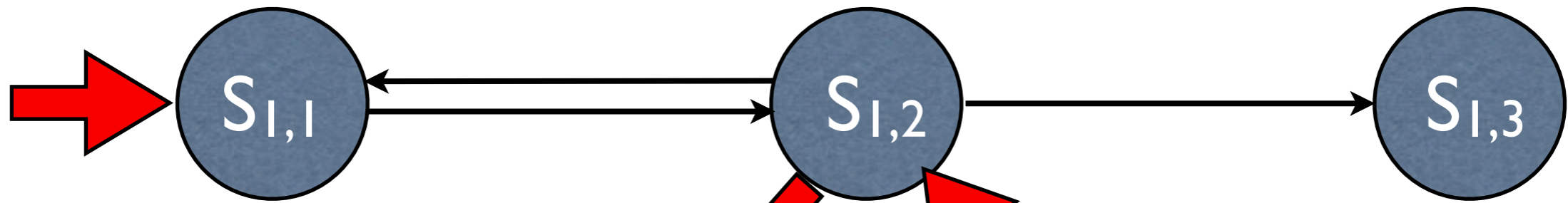


# CopperCore (I)

- 2003 - 2004 under development, code has been open sourced (SourceForge)
- finite state machine, keeps track of states of users

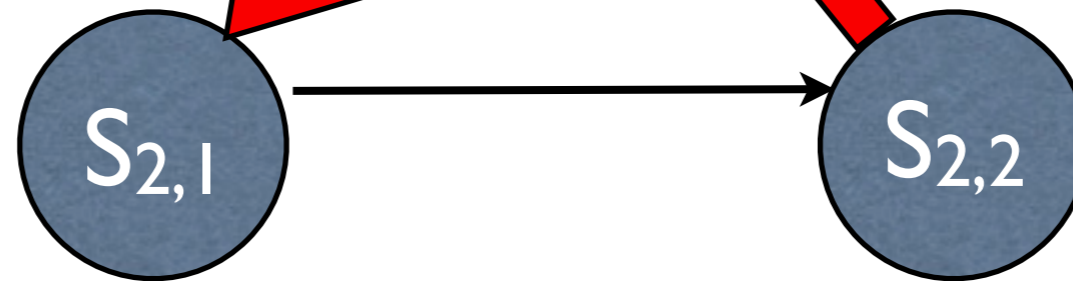


student  
states

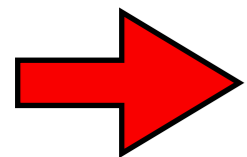


essay submitted

essay rated



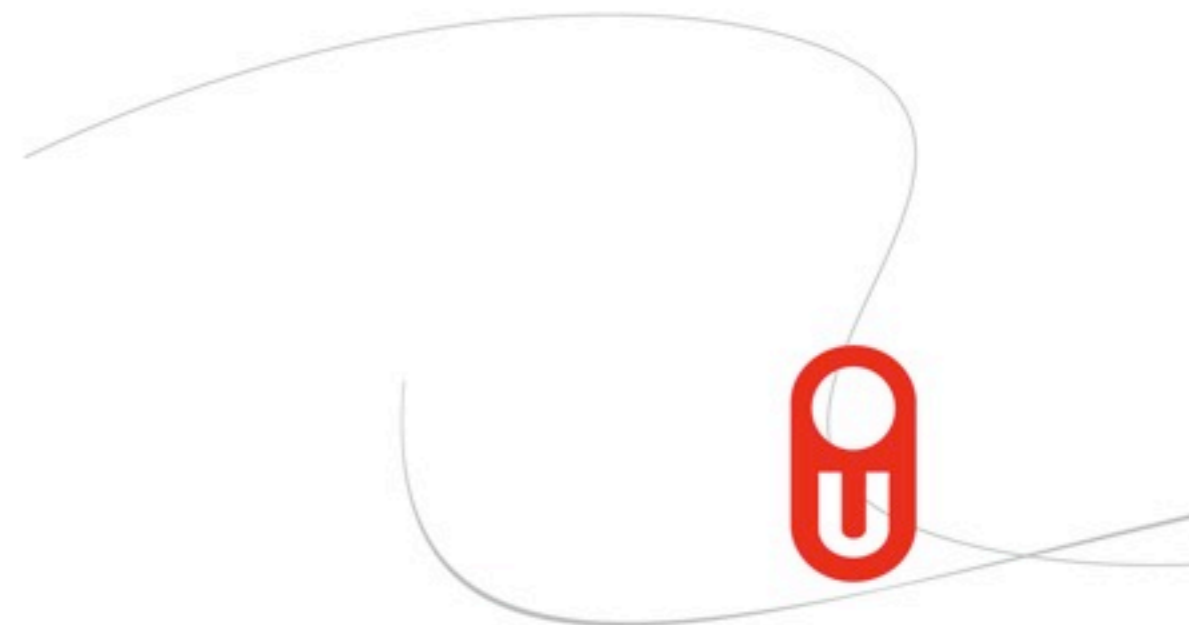
teacher  
states



*input/output*



*state transition*



# CopperCore (3)

- APIs to make development of LD compliant VLEs easier
- Course Manager: publish UOL, createUser, createRun, adUserToRun, addUserToRole, etc.
- LDEngine: various calls, to sequence LD's XML



# Strengths of LD (1/2)

- LD is a formal language for instructional/learning design, it fosters:
  - reuse of UoLs (courses, programmes)
  - reuse of designs (templates, patterns)
  - interoperability: one VLE for every need
- hence: gains in efficiency



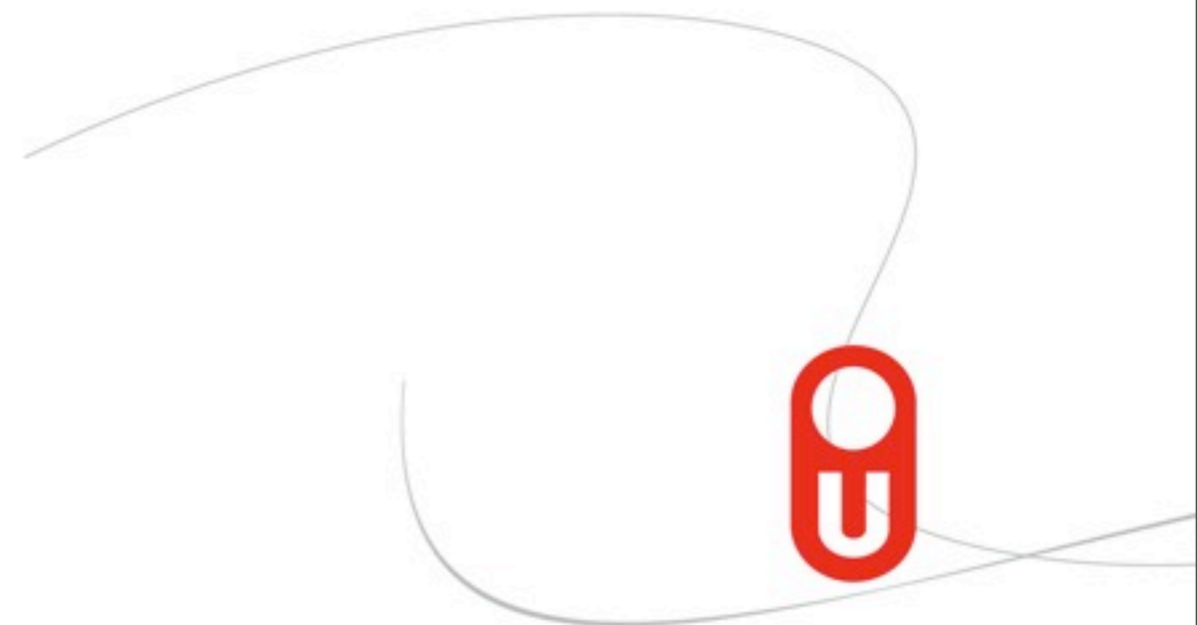
# Strengths of LD (2/2)

- because of reuse and interoperability, also gains in efficiency?
- because of team effort, also gains in effectiveness (better designs) and attractiveness?



# Weaknesses of LD

- complexity of the specification itself
- lack of players (in spite of CopperCore)
- lack of authoring environments
- lack of real uptake



# 3 The future of learning design



# Threats to LD

- teachers' understandable reluctance to switch to industrial development model, dividing labour between specialists
- existing VLEs and their vested interests (Blackboard, but also Moodle); their tendency to cater for existing demands
- competition from SCORM and CC specs

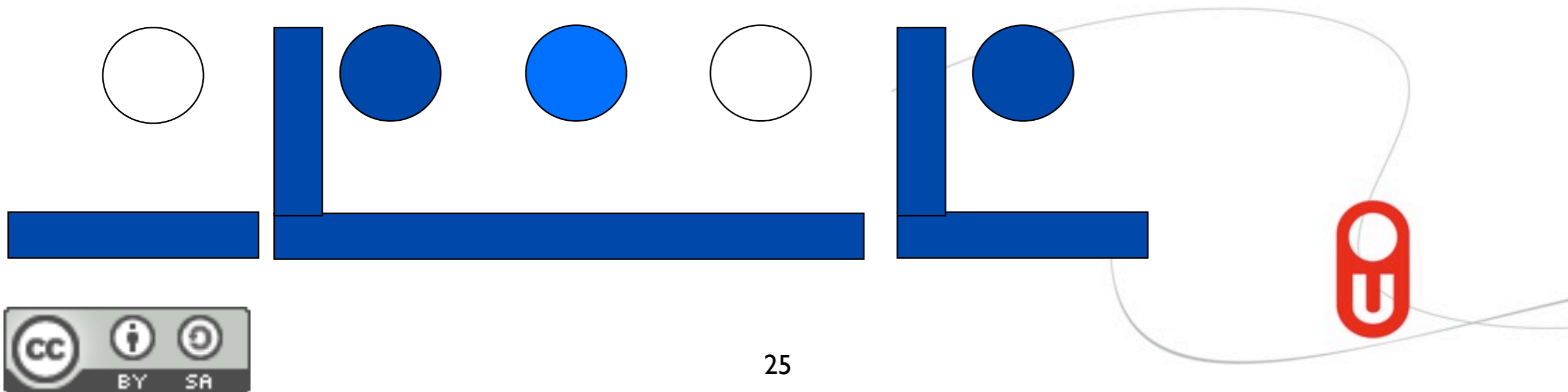


# Opportunities for LD



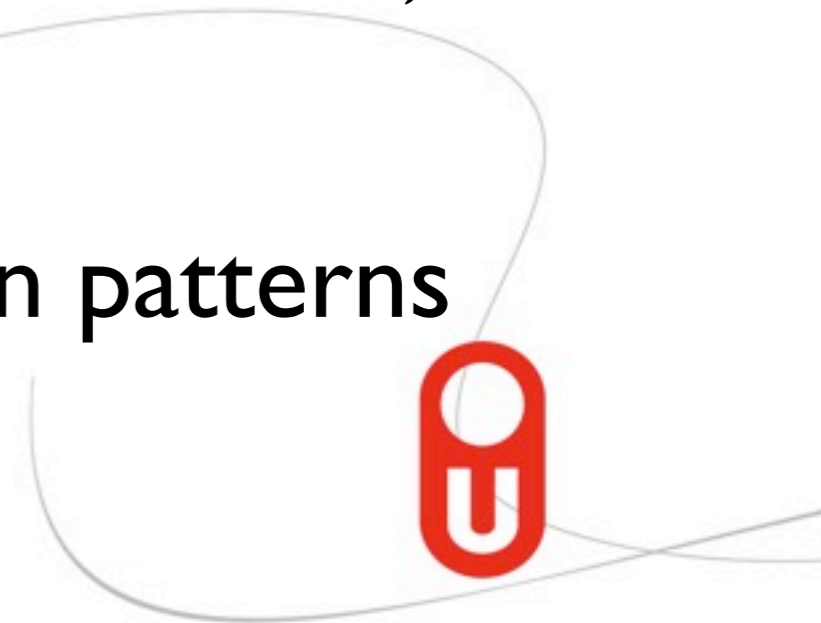
# Formalising 4C/ID (I)

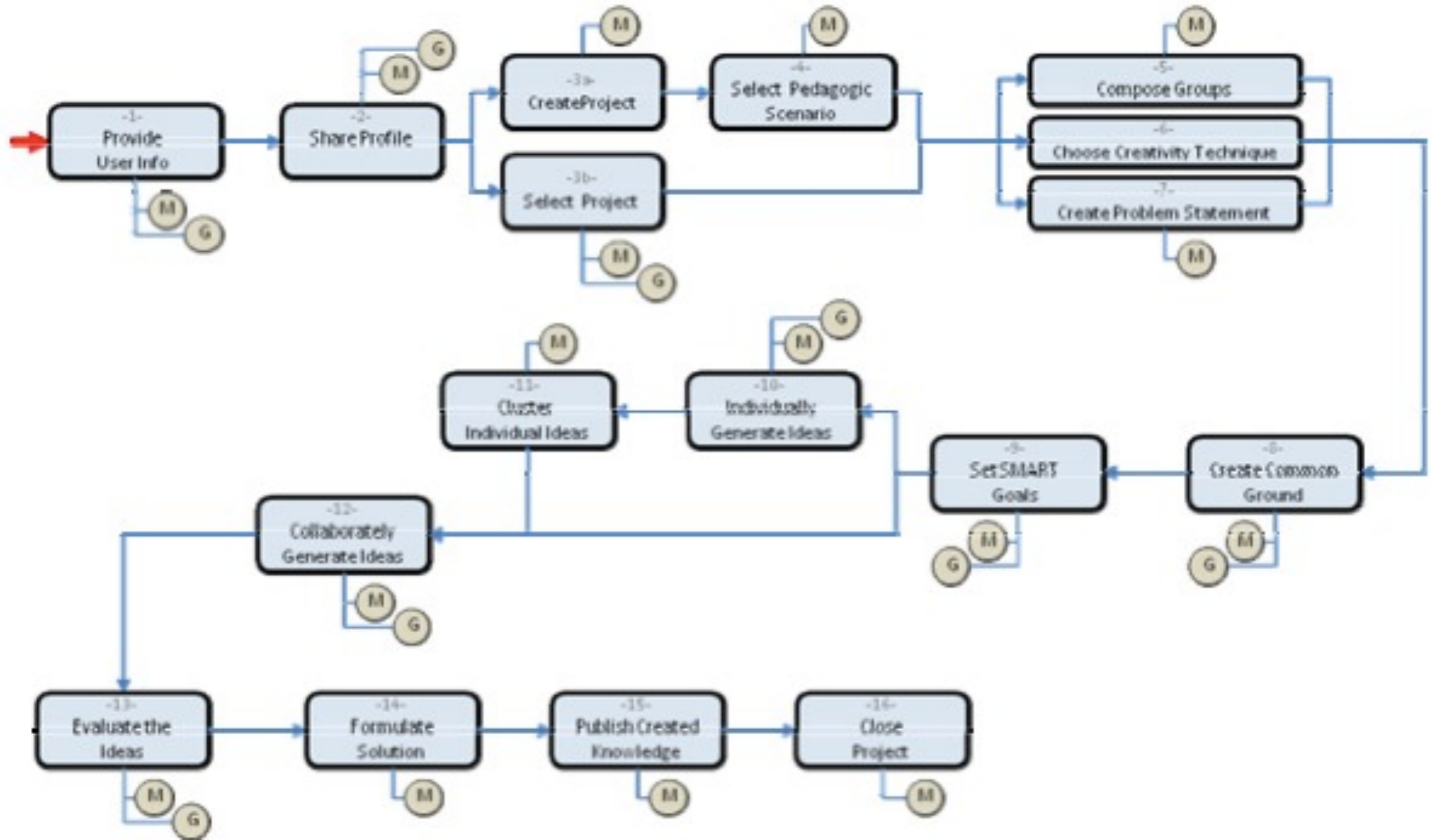
- 4C/ID is a design methodology
- based on whole tasks
- of increasing difficulty
- each task is an activity, each task class is activity structure



# idSpace (2)

- platform for distributed, collaborative product design, kind of VLE
- storing 'ideas' for later use
- runs on scenarios for knowledge sharing and on creativity techniques (brainstorm, six hats, scamper, ...)
- currently: descriptive flow design patterns





# Ludi (4)

- EU project proposal to extend LD
- serious gaming in teacher education
- picks up old idea to script games with LD



# Learning Networks (4)

- self-organised, lifelong learning in Learning Networks
- LN is online, social network designed to support non-formal learning
- LNs rely on computing infrastructure, and on availability of learning resources



# 4 Conclusion



1. Strength: LD is a way to formalise (vocab. & syntax) instructional/learning design
2. Weakness: learning design is already a complex notion, the ID specification adds the complexities of a formalism to this
3. Threat: the powers that be, vested interests
4. Opportunities: non 'traditional' contexts



- Does LD have a future?
- A lot of work is being done to systematise learning design as an activity and as product.
- LD provides a formal language for describing both.
- Adoption of LD for this is a complex issue, it will only happen if people heed the rules of innovation diffusion strategies (in Rogers sense).



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<http://celstec.org>

<http://pbsloep.nl/vv.html>

<http://dSPACE.ou.nl>

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Skype: celstec-peter.sloep

Jabber: pbsloep



# Some references

## *On designing learning with Learning Design:*

Sloep, P. B., Hummel, H., & Manderveld, J. (2005). Basic design procedures for e-learning courses. In R. Koper & C. Tattersall (Eds.), *Learning design; A handbook on modelling and delivering networked education and training* (pp. 139-60, 367-385). Heidelberg: Springer Verlag.

## *An evaluation of the use of Learning Design in actual practice*

Sloep, P. B., Van Bruggen, J., Tattersall, C., Vogten, H., Koper, R., Brouns, F. et al. (2006). Innovating education with an educational modelling language: two case-studies. *Innovations in Education and Teaching International*, 43(3), 291-301.

## *On Learning Networks*

Sloep, P. B. (2009). Fostering Sociability in Learning Networks through Ad-Hoc Transient Communities. In M. Purvis & B. T. R. Savarimuthu (Eds.), *Computer-Mediated Social Networking. Proceedings of the First International Conference, ICCMSN 2008. Dunedin, New Zealand, June 2008, revised selected papers.* (pp. 62-75). Heidelberg, Germany: Springer.

## *On finite state machines*

Vogten, H., Tattersall, C., Koper, R., Van Rosmalen, P., Brouns, F., Sloep, P. et al. (2006). Designing a learning design engine as a collection of finite state machines. *International Journal on E-Learning*, 5(4), 641-661.

## *Overview of many aspects of LD, somewhat dated*

Koper, E. J. R., & Tattersall, C. (2005). *Learning Design - A Handbook on Modelling and Delivering Networked Education and Training.* Berlin-Heidelberg: Springer-Verlag.

