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

learner

performs

0, 1

1..*

learning activities

learning opportunity


0..*

1

has

learning outcome

learning environment

fellow learners

staff (admin, teacher)

artefacts

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criteria for successful designs

- **learner**
  - performs
    - **learning activities**
      - **attractiveness**
        - realized vs intended outcome
  - **effectiveness**
    - effort to achieve outcome

- **learning opportunity**
  - **efficiency**
  - **learning outcome**

- **learning environment**
  - **fellow learners**
  - **staff (admin, teacher)**
  - **artefacts**

- **student perceptions**

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• 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
<?xml version="1.0" encoding="UTF-8"?>
<!-- edited by Colin Tattersall, adapted by Peter Sloep (Open University of the Netherlands) -->
    <schema>IMS Metadata</schema>
    <schemaversion>1.2</schemaversion>
</manifest>
<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:properties>
        <imsld:globpers-property identifier="P-Problem-Description">
            <imsld:role-ref ref="R-coordinator"/>
            <imsld:datatype datatype="file"/>
        </imsld:globpers-property>
        <imsld:locrole-property identifier="P-Problem-Statement"/>
    </imsld:properties>
</organizations>
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

\[ S_{1,1} \quad S_{1,2} \quad S_{1,3} \]

essay submitted

essay rated

teacher states

\[ S_{2,1} \quad S_{2,2} \]

input/output

state transition
• 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 (1)

- 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).
Some references

On designing learning with Learning Design:

An evaluation of the use of Learning Design in actual practice

On Learning Networks

On finite state machines

Overview of many aspects of LD, somewhat dated