Formative assessment with IMS LD and IMS QTI

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Overview

• Why use LD+QTI together?
• How to use LD+QTI together?
• Demo
• Ongoing R&D: Supporting new forms of assessment
IMS Learning Design

- Notation to represent units of learning
  - any delimited piece of education or training, such as a course, a module, a lesson, etc. More than just a collection of ordered resources to learn
  - People act in different roles
  - working towards certain objectives
  - by performing learning and/or support activities
  - within an environment, consisting of learning objects and services used in the performance of the activities.
IMS LD is an executable notation

Designers create Units of Learning

Learners (and staff) use an LD-aware software application in (a part of) their learning process

See both design-time and run-time tools at the Open Market!
... then orchestrate their interplay

Set up these constructs ....

with thanks to Bill Olivier of JISC
Who does what, when?
Orchestrating Learning & Assessment

• Summative assessment
  – “summative assessment summarises the quality and characteristics of the student.

• Formative assessment
  – formative assessment relates to students’ learning processes, helping to guide them in their studies, providing feedback on areas of learning requiring further work, …."

*From “The Handbook for Economics Lecturers”*
Some scenarios (1)

• Single learner scenarios:
  – Want to check the learner’s level of understanding before sending him/her down a particular learning path (intake assessment);
  – Want to check whether a concept has been learned before allowing the learner to progress;
  – Want to provide a high level of feedback in a module to keep motivation high;
  – Want to end a course with an examination;
Some scenarios (2)

• Multi learner scenarios:
  – Want to have individuals’ answers be revealed to a group to promote discussion and learning;
  – Want to arrange for peer assessment;
  – Want to divide a set of students into several groups of more-or-less equally able students;
  – Want to divide a group of students into groups with individuals of differing levels of ability;
  – Want to give the best/worst performer in a group a particular role in a learning design;
Needs

• Create Units of Learning incorporating tests, making them available at the right point in a learning flow
• Allow results of tests to be used in the flow of activities
• Allow information on learning to be used in a test
• OUNL participated in QTIv2.0
  – Using LD and QTI together
  – Synchronisation of QTI variables with LD properties
  – Variable naming and typing
Unit of Learning

Design time

Run time

<locpers-property identifier="VPROP"/>

<decvar varname="VPROP" vartype="Integer" defaultval="0"/>

LD processor

QTI processor

Eg CopperCore

Eg API
CopperCore Service Integration

• Funded by JISC ELF toolkit strand
• Joint development by OUNL and OUUK based on earlier work done in the JISC SLeD project
• Integration of two services:
  – CopperCore for IMS LD specification
  – APIS for the IMS QTlv2.0 specification
CopperCore Service Integration

- LD Engine (CopperCore)
- QTI engine (APIS)
- Forum service provider
- Search service provider

CopperCore Service Integration (CCSI)

LD player (Sled)

User browser
So … LD+QTI

• Why?
  – “Assessment should be more than merely a test at the end of instruction to see how students perform under special conditions; rather, it should be an integral part of instruction that informs and guides”

• How?
  – Following the LD in QTlv2.0 approach, implemented in the CopperCore suite
Let’s see ...
ok ...
Ongoing work

• CopperCore continues to be developed
  – Used as part of TENCompetence infrastructure

• APIS lives on
  – R2Q2 (JISC project)
  – Work at Universitat Pompeu Fabra (UPF, Barcelona)

• TENCompetence project work in supporting new forms of assessment
  – Assessment processes, Computer Supported Collaborative Assessment (CSCA)
  – Peer assessment, 360 degrees feedback, portfolio assessment, …
# 360 degree feedback

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Peer Assessment

With thanks to Yongwu Miao
Research questions

• How far can LD+QTI take us in supporting competence assessment in lifelong learning?
• Is there a need for a richer degree of representation?
  – OUNL/CITO Assessment Model
Technology development

- Ongoing R&D in TENCompetence
- IMS Tools Interoperability 2.0?
In summary

• Many scenarios for integrating assessment in learning
• Approach and software available using today’s IMS open technical specifications
• Ongoing R&D in this area within TENCompetence project
  – www.tencompetence.org
• Working to move R&D results into the specification process where appropriate