Sharing Assessment Information: Interoperability in Computer Based Assessment

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Overview

- Open Technical Specifications for E-Learning from IMS
- IMS Question & Test Interoperability
- Assessment in TENCompetence
Why interoperability?

• Spreading costs of assessment development across delivery contexts
• Plug and play tooling
• Easing comparison of R&D results in the area of assessment
IMS

- IMS Global Learning Consortium, Inc
  - Non-profit organization
  - More than 50 Contributing Members and affiliates.
- Develops and promotes the adoption of open technical specifications for interoperable learning technology
- www.imsglobal.org
- Many specs derived from European work
IMS specifications

• Three documents
  – Information Model
  – Binding, XML used to date
  – Best Practice and Implementation Guide
  – Recent specs have added to this list, eg conformance guide, migration guide

• “if you build your software to be aware of these concepts, it will interoperate with other software built to be aware of the same concepts”
### IMS specifications

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IMS QTI

- **Question & Test Interoperability**
  - Exchange of item, test and results data between authoring tools, item banks, test constructional tools, learning systems and assessment delivery systems
  
- **History**
  - March 1999 v0.5
  - May 2000 v1.0
  - Extended and updated twice, in March 2001 and January 2002.
  - March 2003 v1.2.1
  - Review 2003: need for version 2.0
• QTI v2.0 January 2005
  – concentrated only on the individual assessmentItem
    and did not update those parts of the specification
    that dealt with the aggregation of items into sections
    and tests or the reporting of results.
• QTI v2.1 (January 2006) release completes the
  update from 1.x to 2.x by replacing those
  remaining parts of the QTI specification.

• Now at Public Draft
QTI 2.1 spec development team

- University of Surrey, Question Mark, Pearson VUE, ETS, SURF, Cambridge Assessment, CETIS, ...
  - The Open University of the Netherlands participated in the QTI 2.0 team

- Now a few slides to give you a feel for QTI
Items, Sections, Assessments
UNATTENDED LUGGAGE

Look at the text in the picture.

NEVER LEAVE LUGGAGE UNATTENDED

What does it say?

You must stay with your luggage at all times.  
Do not let someone else look after your luggage.
Remember your luggage when you leave.

Remember your luggage when you leave.
RICHARD III (TAKE 3)

Identify the missing word in this famous quotation from Shakespeare's Richard III.

Now is the winter of our discontent
Made glorious summer by this sun of York
And all the clouds that lour'd upon our house
In the deep bosom of the ocean buried.
JEDI KNIGHTS

Much to the dismay of Star Wars fans, the 2001 UK national census classified people who identified themselves as Jedi Knights as having no religion. In fact, the Jedi accounted for more than 4% of this group!

In total, what percentage of the UK population do you think were eventually classified as having no religion?

18
Implementations?

- Good overview of tool support is http://assessment.cetis.ac.uk/External%20links

- Commercial support
  - Question Mark Perception
  - Respondus
  - Report looking at support from tools: http://www.fontyspublicaties.nl/show.cgi?did=3304

- Moodle also has QTI import/export
- JISC project APIS Open source QTI v2.0 assessment rendering engine.
But …

• Movement
  – away from massive, standardized, summative testing with multiple choice questions based on knowledge acquisition.
  – towards assessment integrated in learning and instruction, process-based, with student involvement.

• Need for broader view incorporating:
  – assessment process (which steps are to be carried out and by whom)
  – rationale (what is being tested and how)
eLearning R&D at OUNL (1)

- R&D on Educational Modelling Language, 2000
  - Used as foundation for IMS Learning Design, 2003
- IMS Learning Design is used to model units of learning
  - A unit of learning (UoL) is 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 – includes activities, assessments, services and support facilities provided by teachers, trainers and other staff members.
- Model who does what, when, with whom and using which learning objects and services
eLearning R&D at OUNL (2)

• Interest in integration of learning and assessment
  – Formative as well as summative assessment
  – Work on integrating IMSLD and IMSQTI

• Interest in new forms of assessment
  – Peer assessment, portfolio assessment
  – New 6th Framework project
LD+QTI learning scenarios (1)

• Single learner scenarios:
  – Want to check the learner’s level of understanding before starting a course (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;
LD+QTI learning 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;
www.tencompetence.org

TEN Competence
Building The European Network for Lifelong Competence Development

Assessment Modelling work in TENCompetence

• One of the project aims is to develop:
  – New innovative pedagogical approaches, assessment models and organisational models for lifelong competence development, supported by the TENCompetence technical and organizational infrastructure.
  – **Develop** a formal specification **model and supporting tools** that combines **new assessment types** and the ones included in the IMS QTI.
    • Based on some initial work carried out by OUNL and CITO
    • Results to be used to augment QTI
Final thoughts

- IMS QTI is an open technical specification for the exchange of testing data
- Newer forms of assessment require additional modelling work
  - Being addressed in the TENCompetence project