Metadata for assessment resources

Muriel Foulonneau
Tudor Research Centre
Luxembourg
muriel.foulonneau@tudor.lu

Who we are

- Open source assessment platform (TAO)
  - Used semantic technologies
- Online/offline assessment services
  - OECD PISA study (Programme for International Student Assessment) and PIAAC study (Adult education) – 40+ countries.
  - School monitoring (Luxembourg, Hungary)
  - Assessment of students awareness on health issues
  - Assessment of the efficiency of documents in increasing candidates’ skills + of instructional efficiency of specific trainings
  - Competence assessment for unemployed
  - Adaptive testing for language diagnostic in a language school

https://www.tao.lu
Who we are (2)

- Research projects
  - New types of items (Cogsim), interactive table
  - Item/test quality issues (TAO-QUAL)
  - Formative assessment
  - Attention data

- Developments
  - Medical assessment
  - Formative assessment: peer / self assessment

- International cooperations
  - ETS (TOEFL, US), Leipzig institute for Science Education (GE), NIER (Japan) …

Item development and management

Manage information about items (classification, …)

Multilingual and cognitive items

WYSIWYG authoring

Different item types/templates
  (MCQ, Kohs, C-Test, Campus, Cascade, QTI, XHTML, HAWAI, …)
**Multiple models**

- **Item** development and management
- **Test** development and management
- **Test takers** management
- **Group** management
- **Results** management

⇒ Mainly the structure, few metadata
⇒ Metadata models are up to the test authors
⇒ E.g. for cognitive and socio-economic correlations
⇒ They can have models of competences to relate items to
⇒ They do not create much metadata elements + they all have their own model (PhD student on model elicitation)

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**Improving the management of resources**

- Item storage for longitudinal studies, for item model reuse
  - Access rights and security issues
  - Identification of items and tests
  - Item components, including metadata and multimedia resources (assets)
    - In the item bank or in external multimedia repositories
- Implementation of models
  - Standard models
  - Ontology elicitation
Standards for assessment resources

- For candidates
  - IMS Learner Information Package?
- For populations
  - ?
- For classifications
  - (e.g., of skills and competences)

Standard for tests and items: IMS-QTI

- Many local formats (e.g., HotPotatoes, Moodle, Blackboard)
- Implementation is very partial in most platforms (CETIS survey 2010, ICOPER study (D6.1))
- Exchanging items and tests across platforms
- Managing items in item repositories

- No autonomous representation of multimedia resources

Descriptive metadata in IMS-QTI

- LOM profile +
Usage data

Test development and management

Selection of items

Opportunity to sequence items by difficulty, weight, guessing...

IMS-QTI offers a dictionary of usage data

Multimedia resources

- Item authoring including multimedia resources
  - How to select resources?
- Barker (2008) on learning material
  - Non education metadata models (e.g., DC, MODS, MPEG7)
  - But what is really useful?
    - looking into the expectations of test authors
    - looking into the risks for items, primarily the risks of bias
- Include cognitive and cultural aspects
  - require both information on subjects and multimedia resources
- Different roles of multimedia resources in an item (e.g., content visuals vs context visuals), with different impacts
  - is it possible to capture user generated data / paradata to get additional information?

http://llt.msu.edu/vol5num1/alseghayer/default.html
Need to

- Provide standard metadata sets
  - Translation into RDFS

- Mapping between metadata models provided by test authors (preferably RDFS models)

- Access harmonized data on multimedia resources for the test authoring interface

- Collect attention data
  - Have models for aggregating relevant usage data from assessment items used in formative assessment.

More information

http://www.tao.lu

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Thank you