Assessment in TENCompetence: Sharing Assessment Process Information

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Overview

• TENCompetence Project
• A Standard-based and Service-oriented Approach to Support Assessment Process
• Assessment Process Specification (APS)
• Assessment Process Modelling Tool
• Conclusions and Future Work
TENCompetence Project

TENCompetence is a 4-year (Dec. 2005 - Nov. 2009) EU-funded Integrated IST-TEL project and fifteen partners are involved.

Project Aims:

- to build the European Network for Lifelong Competence Development
- How? By providing a technical and organizational Infrastructure
- Who for? For use by any individual, group or organization
- What for? To develop their competences
TENCompetence Project

Assessment in TENCompetence (WP6.B)
- Supporting assessment that is integrated with learning and instruction (which steps are to be carried out and by whom), e.g., formative & summative assessment
- Supporting new forms of assessment, which are process-based and are normally involved with multi-role/users, e.g., peer assessment, 360 degree feedback, and portfolio assessment

Objectives of WP6.B
Develop a formal assessment specification and supporting tools that combines new assessment types and the ones included in the IMS QTI.
A Standard-based and Service-oriented Approach to Support Assessment Process

A combined use of IMS LD, IMS QTI, and assessment-specific services to model assessment processes

- Using IMS LD to model multi-role/user-involved assessment processes
- Using IMS QTI to model classical assessment tasks and using assessment-specific services to model special assessment tasks
- Using IMS LD to model a learn-flow with complicated process controls and decision rules
- Using IMS QTI, IMS LD, and assessment-specific services to model data-flow
An extended IMS LD model

A simplified IMS QTI model

TEN Competence
Building The European Network for Lifelong Competence Development
A Standard-based and Service-oriented Approach to Support Assessment Process

Architecture of Run-time Environment

Player

player

Dispatcher/Service broker

IMS LD engine

IMS QTI engine

ePortfolio editor

Concept mapping

Latent Semantic Analysis (LSA)

UoL management and enactment service

generic assessment service

special assessment services
A Standard-based and Service-oriented Approach to Support Assessment Process

CopperCore Service Integration (CCSI)

UoL management and enactment service

generic assessment service

An example of run-time environment
A Standard-based and Service-oriented Approach to Support Assessment Process

A peer assessment example
A Standard-based and Service-oriented Approach to Support Assessment Process

A screenshot of execution of the peer assessment example
Assessment Process Specification

Problem:
It is too difficult for practitioners to specify an assessment process model by using IMS LD, IMS QTI, and assessment-specific services.

Solution:
Developing an additional layer, assessment process specification (APS) used to describe assessment processes in an interoperable and abstract way. By using APS, every assessment practice can be represented in a design description (an abstract assessment plan), which captures underlying design ideas and principles. Thus, practitioners can share and exchange their assessment process models (assessment designs).
Assessment Process Specification

Programmed instruction model

Peer assessment model

360 degree feedback model

Domain-specific models

Assessment process specification

IMS LD +
IMS QTI +
Assessment-specific services

mapping

Unit of assessment
Assessment Process Modeling Tool

Aims:
- Enabling skilled users to define their own assessment process models by providing basic modeling facilities
- Enabling practitioners to understand, reuse, and customize pre-defined assessment process models by providing design guidance
- Transforming assessment process models into executable models represented in IMS LD + IMS QTI + assessment-specific services

The tool is still in design and will be implemented in the next year. The design and use of the tool will be explained by using a mock-up of the UI
Assessment Process Modeling Tool

- Four kinds of stages in a peer assessment process
- In each stage, people with a certain role perform activities
- In each activity, there may be input and output artefacts
Assessment Process Modeling Tool

- Guide to make design decisions by showing guidance and consequence
- Make design decisions by selecting default or pre-defined options
- Customize a process model (for skilled users)
Here shows the guidance to make design decisions

Specify role structure, artifacts, and services

Show and edit peer assessment model
How many stages in the peer assessment process?

- Default (three stages)
- With design assessment stage
- With additional feedback stage
- More complicated setting

Please make a decision
**How many roles will be involved?**

<table>
<thead>
<tr>
<th>role</th>
<th>artifact</th>
<th>service</th>
<th>stage</th>
<th>lane</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>design assessment</td>
<td>do assignment</td>
<td>give feedback</td>
<td>react to feedback</td>
</tr>
</tbody>
</table>

Default (two persons)
With the involvement of tutor

More complicated setting

Five stages have been defined
Default role setting and with the involvement of a tutor
Would you like to define a typical activity for each stage?

Please make a decision
Would you like to define a typical activity for each stage?

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<tbody>
<tr>
<td>designer</td>
<td></td>
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<tr>
<td>tutor</td>
<td></td>
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<tr>
<td>candidate</td>
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<tr>
<td>learner1</td>
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<td>learner2</td>
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<td>reviewer</td>
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<td>learner1</td>
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<tr>
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Nine activities are defined and roles are assigned.
Which stages will the tutor be involved?

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Please make a decision
The tutor is assigned to work in the stage of “give feedback 2”
Would you like to create artifacts?

Please make a decision.
Would you like to create typical artifacts?

artifacts are created
Would you like to change the titles of artifacts?

Role | Artifact | Service
--- | --- | ---
 | assignment1 | 
 | assignment2 | 
 | outcome1 | 
 | outcome2 | 
 | feedback1.1 | 
 | feedback1.2 | 
 | improved outcome1 | 
 | improved outcome2 | 
 | feedback2.1 | 
 | feedback2.2 | 

Stage | Lane
--- | ---
design assessment | 
do assignment | 
give feedback | 
react to feedback | 
give feedback 2 | 

Artifacts are created
Would you like to change the titles of artifacts?

The title of an artifact has been changed
Would you like to define artifacts?

An artifact has been created

QTI assessment editor

Review Form

- How do you think about this article?
  - accept without modification
  - accept with minor/major modification
  - reject

Comments:
Peer assessment

Would you like to define artifacts? finished

Role artifact service

Stage lane
design assessment do assignment give feedback react to feedback give feedback 2

Paper 1
Paper 2
Article 1
Article 2
Feedback 1
Feedback 2
Improved article 1
Improved article 2
Tutor's feedback 1
Tutor's feedback 2
Assessment form

An artifact has been defined
An artifacts flow has been defined.
How will the artifacts be distributed?

An artifact flow has been defined.
Conclusions and Future Work

Conclusions:
- IMS LD, IMS QTI, and assessment-specific services can be used complementarily to support various assessment processes.
- A higher level assessment process specification and corresponding supporting tools are expected to enable practitioners to share and exchange assessment process information.

Future work:
- Developing the assessment process modeling tool.
- Integrating QTI editor and other assessment services.
- Developing mapping algorithm to transform APS to IMS LD + IMS QTI + assessment-specific services.
Thanks for your attention!

Questions?

Contact information:
• Project website: www.tencompetence.org
• For details of associate partnerships: http://www.tencompetence.org/node/16
• Contact c.kew@bolton.ac.uk for all other enquiries