What’s New in QTI 3?

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Know Your History…

- QTI 1.0
  - Released in 1999, no longer public
- QTI 1.2
  - Released in 2002, focus on semantics
  - Still in use for Common Cartridge 1.2 (popular with LMS)
- QTI 2.0
  - Released in 2005, new item model only
    - Based on HTML
- QTI 2.1
  - Released in 2012, added HTML for presentation
    - Includes (sub)specifications for Metadata, Usagedata, and Results Reporting
- QTI 2.2
  - Released in 2015
    - Added HTML5/ARIA, APIP-extended Stimulus
    - Conformance test set still in progress, based on EBA Conformance Levels (Entry, Core, Advanced)
- APIP 1.x
  - Profile of QTI 2.x, focused on Accessibility
    - Using PNP: Personal Needs & Preferences
- QTI 3
  - Formerly known as aQTI
  - Merger of QTI 2.x and APIP
OAT Experience

- Different interpretations of QTI
  - Interaction rendering, rubrics
- Many custom extensions
  - Item types, adaptive testing
- Different versions and profiles of QTI
  - QTI 1.2, 2.X, APIP, PARCC, Dutch Exam Profile (DEP)
- Many claims of conformance
  - Lacking formal IMS certification
  - Conformance not granular enough
Improvements in QTI 2.2

- Introduced HTML5, Shared Stimulus, Sections as separate entities
- Introduced Conformance Certification Levels
  - Level 1: Entry
  - Level 2: Core
  - Level 3: Advanced
- Introduced best practices for extensions
  - Portable Custom Interaction (PCI) to enable Technology Enhanced Items (TEI)
  - Standard on Computer Adaptive Testing (CAT)
Portable Custom Interactions (PCI)

- Best practice on how to define "Custom Interactions" in QTI
- One-off vs. Generic types
  - One-item type, e.g. very specific simulation
  - Generic type, e.g. likert
    - Potential candidate for future standardization in QTI
- Relatively new specification
  - Candidate final released in 2013
  - Change proposals in 2014, 2015
  - PCI 1.0 Candidate Final released in 2017
Standard on CAT

- Workgroup established May 2016
  - Members include Elsevier, Pearson, ACT, Pacific Metrics, PCG, PARCC
- Problem: many CATs, all proprietary and tightly coupled to delivery systems
  - But similar strategies in interfacing: what’s the next item to present?
- Goal: interoperability of adaptive tests (content) and broader use of algorithms
  - Algorithm: content or a service?
  - At least be able to use algorithms in multiple systems and vice versa
- Solution: treat CAT engine as a Black Box, define best practices (like PCI), including:
  - QTI Extension: how to reference adaptive algorithms and required data
  - CAT Engine API: methods for interacting with adaptive algorithms
- V1.0: later refinement required
  - Additional (bilateral) agreements still necessary
**CAT Engine API**

1. **Initialize Adaptive Section**
   - POST /sections

2. **Loop each Examinee**
   - taking this Adaptive Section
   - POST /sections/{sectionIdentifier}/sessions

3. **Loop each Adaptive Stage**
   - until NextItems is empty
   - POST /sections/{sectionIdentifier}/sessions/{sessionIdentifiers}/results

4. **End Examinee Session**
   - DELETE /sections/{sectionIdentifier}/sessions/{sessionIdentifiers}
   - DELETE /sections/{sectionIdentifier}

5. **Terminate Adaptive Section**
   - Handle results

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**Test Delivery Applications**

- POST /sections/{sectionIdentifier}/sessions
- POST /sections/{sectionIdentifier}/sessions/results
- DELETE /sections/{sectionIdentifier}/sessions
- DELETE /sections/{sectionIdentifier}
Next: QTI 3.0

• The issue with exchanging items preserving CSS is this could lead to consistency issues in item rendering and overall test taker experience.

• To address this, the QTI 3 introduces the concept of the “Shared Vocabulary” to push the envelope of exchanging presentation information even further. It allows assessment delivery engines to preserve their own style guides, but still honor the demands of the item authors in a more granular way.
QTI 3 Highlights

- Remodel of APIP elements
  - Cards & catalogs
  - Extended ARIA support
- Web components friendly syntax
  - Closer to implementation
- Shared Vocabularies
  - CSS classes & data-attributes
- Integration of PCI and CAT best practices
  - Native elements, not extensions
- Originally only item model
  - Expanded to Tests too…
- Last version of QTI?
QTI 3 Shared Vocabulary

- **Predefined styles/behaviors**
  - **On interactions**
    - E.g. choice labels, stacking, widths, heights placement, messages
  - **On item layout/structure**
    - E.g. X column layout, emphasis
  - **On text formatting**
    - E.g. text underline, vertical/horizontal alignment

**Example: Demonstrates class="qti-labels-upper-alpha"**

```
<qti-choice-interaction class="qti-labels-upper-alpha" max-choices="1"
response-identifier="RESPONSE">
  <qti-simple-choice identifier="ChoiceA">You must stay with your luggage at all times.</qti-simple-choice>
  <qti-simple-choice identifier="ChoiceB">Do not let someone else look after your luggage.</qti-simple-choice>
  <qti-simple-choice identifier="ChoiceC">Remember your luggage when you leave.</qti-simple-choice>
</qti-choice-interaction>
```

**Expected Rendering:** Visual labels are uppercase alphabetic

- A. You must stay with your luggage at all times.
- B. Do not let someone else look after your luggage.
- C. Remember your luggage when you leave.
Synergies with Existing (IMS) Specifications

- **CASE**
  - Curriculum & Academic Standards Exchange
  - Aligning standards
  - Included in QTI 3 manifest

- **Caliper**
  - Learning Analytics
  - Updated Assessment Metric Profile by QTI Working Group (in progress)

- **Standard on Proctoring**
  - Leveraging LTI Advantage to integrate remote proctoring solutions
Next Steps

• QTI 2.2: November 2018
  - Completing Level 1 & 2 Conformance Certification suites
• QTI 3: November 2018
  - Draft Documentation
  - Draft Conformance Certification
  - Draft Specification release
• Get involved too!
  - Join IMS Europe, APSC or IMS (Technical) Working Groups!
Thank You!

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