ASN Toolkit: Linking Cyber Learning Systems through Achievement Standards

Diny Golder, JES & Co., USA

Jillian Dellit, The Le@rning Federation, Australia
What we said we would do...

The ASN Toolkit will be a one stop shop for a cataloging tool, *a mapped view of state standards documents*, correlation tools that use the ASN standards and *a mapping tool*, enabling the user to align statements to each other.
Fix what’s broke...
Keep what works...
Live true to the definition of “Cyber Learning”…

“…cyberlearning, the use of networked computing and communications technologies to support learning.” – National Science Foundation
Demonstrate progress through real life problem solving...

Australia and their new National Curriculum:

Linking Cyber Learning Systems through Achievement Standards
Jillian Dellit

Director of The Le@rning Federation Secretariat
Australia
Towards CyberLearning

Context for using ASN configurable Resource Description Editor (RDE) in Australia

Jillian Dellit 2009
jillian.dellit@thelearningfederation.edu.au
Number of schools by State and Territory, 2008

<table>
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Source: ABS, Cat. No. 4221.0, Schools Australia, 2008
Our National (not Federal) Context

Ministerial Council
for Education, Early Childhood Development and Youth Affairs

- All state and territory Ministers of the above portfolios
- The Australian Government Minister/s
- New Zealand Minister of Education
- Meet 1-2 times per year
- Small secretariat located in Melbourne
- History of collaboration
MCEECDYA Functions

- coordination of strategic national policy
- negotiation and development of national agreements on shared objectives and interests
- negotiations on scope and format of national reporting on areas of responsibility
- sharing of information and collaborative use of resources towards agreed objectives and priorities
- coordination of communication with, and collaboration between, related national structures.
The Le@rning Federation Concept

10 governments jointly fund digital resources
− Focused where it counts
− Educationally sound
− Relevant to ANZ curricula
− Linked to outcomes or syllabi
− Electronically delivered
− Adaptable
− Copyright cleared
− For all schools
Basis for national sharing

- more curriculum similarity than difference
- cost of multi-media high
- efficiency
- technology can accommodate differences

Jillian Dellit 2009
jillian.dellit@thelearningfederation.edu.au
Aims:

• develop a body of nationally-funded curriculum content, suitable to each state and territory
• develop within a framework that supports distributed access
• facilitate the distribution of materials and IP rights from system to system within a standards-based environment
• in the longer term, use the framework and the content to stimulate further contributions to the pool of material, meeting agreed standards.

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jillian.dellit@thelearningfederation.edu.au
Areas of negotiated agreement

- Standards and Protocols
- Interoperability
- Educational soundness
- Accessibility
- Discoverability
- Intellectual Property
MCEECDYA Non-profit Companies

- Curriculum Corporation
- education.au limited
Now in Phase 4

Jillian Dellit 2009
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2000 - 2009

- 9600 items of content
- Standards for interoperability, accessibility, educational soundness
- School Curriculum Online Thesaurus (SCoTs)
- IP agreements, fully licensed
- Scootle, a direct access and usage environment
- In Australian all states, territories and NZ
- User focus groups, teacher scoping groups
- Research reports

www.thelearningfederation.edu.au
supply-chain model

User priorities
Feedback

Australia teachers and Students

Learning Federation, Digital Library
Managed copyright clearances
CAL-free

Content from a wide range of sources
- publicly developed/commissioned
- commercial publishers
- cultural organisations
- variety of content types
- directly related to Australia curricula
- discoverable by Australia curricula
- teacher additions/annotations

Sourcing new content, funding, procurement

- direct access
- system mediated access
- sector mediated access
Sustainability Model

Option 3

Collaborative content support

- Content maintenance
- Infrastructure maintenance
- Standards & QA
- Copyright
- Licensing
- Research
- Collection agency content
- Content Brokering (Varied providers)
- Supporting content sharing

Tasmania eCentre
Northern territory Explore NT
ACT Myclasses
Victoria DigiLearn

Western Australia DET Portal
Queensland The Learning Place
South Australia Access to learn
New South Wales TaLe

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Current context

- Federal Government Policy of *Digital Education Revolution*

- The Australian Curriculum, Assessment and Reporting Authority (ACARA) established 2009
  responsible for:
  - A national curriculum from Kindergarten to Year 12 in specified learning areas.
    - Currently English, mathematics, the sciences and history
  - A national assessment program aligned to the national curriculum that measures students’ progress.
  - A national data collection and reporting program that supports:
    - analysis, evaluation, research and resource allocation; and
    - accountability and reporting on schools and broader national achievements.

http://www.acara.edu.au
Why ASN?

• Connect our resources to both national and local curriculum
• Intuitive - make teachers’ work richer, easier
• Grow as part of an international education community
• Basis for cyber-supported schooling models fit for Australia’s future.
Processes for using ASN National pool of resources already metadata-rich

• Use Resource Description Editor for future curriculum writing and resource procurement

Anicipate states will gradually:
• retrofit existing local curriculum and resources
• ensure future curriculum requirements and locally generated resources are ASN compliant.

Keen to engage with international efforts such as ASN to:
• improve our capacity to support a more flexible and effective schooling system and
• share curriculum-effective resources.
Our Goals

• teachers discovering curriculum-effective resources for specific curriculum components
• reuse of resources across curriculum
• adjustment and versioning of resources in light of teacher/student feedback.
• encouragement of a local curriculum resource industry
• replenishment of the pool of quality, standards-compliant resources from a wide range of sources
• global supply chain of copy-right cleared, curriculum-effective resources.
How does curriculum link to resources?

- Interoperability through international standards
- Maximise use of existing and future investments
- Facilitate publisher resource alignment to curriculum
- Facilitate classroom discovery and use of resources linked to national curriculum
Achievement Standards Network (ASN) Framework

VELS Level 3 Mathematics

Number

At Level 3, students use place value (as the idea that ‘ten of these is one of those’) to determine the size and order of whole numbers to tens of thousands, and decimals to hundredths.

 Learning Area: Mathematics
 Year Level: 3
 Strand: Number …

http://purl.org/Dta46f649

Achievement Standard Metadata
Additional Metadata
URI (http://purl.org/Dta46f649)

• Positive identification
• Globally unique
• Returns achievement statement text
Correlating resources to curriculum

- Digital Curriculum Resource
  - Metadata http://purl.org/Dta46f649
- Professional Development Resources
  - Metadata http://purl.org/Dta46f649
- Assessment Resources
  - Metadata http://purl.org/Dta46f649
- Pathways (Individual & Program)
  - Metadata http://purl.org/Dta46f649
- Research
  - Metadata http://purl.org/Dta46f649
- Student Portfolios
  - Metadata http://purl.org/Dta46f649
VELS Level 3 Mathematics
Number
At Level 3, students use place value (as the idea that ‘ten of these is one of those’) to determine the size and order of whole numbers to tens of thousands, and decimals to hundredths.

Learning Area: Mathematics
Year Level: 3
Strand: Number ...

http://purl.org/Dta46f649
Project Goals

• Interoperability through international standards
• Maximise use of existing and future investments
• Facilitate publisher resource alignment to curriculum
• Facilitate classroom discovery and use of resources linked to national curriculum
Functions of the ASN Editor (with 2 example fields)

User Interface (AU labels)
- Field text: Year Level
- Field text: Topic

Makes AU Interoperable (LF resources)
- Choose from AU SKOS term URI
- Choose from ScOT SKOS term URI

Makes Internationally Interoperable (ASN property)
- Saved as: dct:educationLevel
- Saved as: asn:conceptTerm

Written to/Read from Data Store

History Draft Curriculum
- The Year 6 curriculum covers History from the time of the dinosaurs to 10000 BC (~ c.200 AD). This period covers the emergence of human civilisations.
  - Content Strand 1
    - What is the meaning of life?
      - Students will understand the value of studying philosophy.
      - Students will understand and the role of the thinker, including the role of museums, historic sites, and community groups.
    - Achievement Standards
      - Process Strand 1
      - Some brand new statement description

Portable RDF/XML files

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<th>Schemes</th>
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<td>Art I is a two-semester course designed to teach students to apply the elements of art and principles of design to the creative process. Art I students are expected to use a variety of media, techniques, processes, and tools to compose original works of art that demonstrate understanding of the elements of art and principles of design, awareness of aesthetic concerns, and the ability to communicate ideas through artwork. Students will critique and reflect on their artwork and the art of others. Students will exhibit artwork and will assemble portfolios that demonstrate successful completion of Art I student learning expectations. Art I is required by the Standards for Accreditation and does not require Arkansas Department of Education approval. <a href="http://igor.zepheira.com:8080/ASN/resources/D1000393">http://igor.zepheira.com:8080/ASN/resources/D1000393</a></td>
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Clipboard
JES & Co. ASN RDF Editor

Documents
New Document
New Statement
Schemes
New Scheme
New Concept

URI: http://igor.zepheira.com:8080/ASN/resources/DX1
Jurisdiction: Australia
Subject: History
Title: History Draft Curriculum
Author: 
Publisher: 
Publication: Published
Document description: Note that all statements are fictional. Document rationale and aims omitted.

Note:
Source:
Date created and
Language: Pocket
The Year 8 curriculum covers history from the time of the dinosaurs to the establishment of major cities (c. 100,000 BC - c.200 AD). This period covers the emergence of human civilisation.

- Content Strand 1
  - What is the meaning of life?
    - Students will understand the value of studying philosophy, including the influence that the landforms have on migration patterns.
    - Students will understand the role of the thinker, including the tricks of the trade.
    - Students will understand the various influences on people’s attitudes towards the past, including the role of museums, historic sites, commemorative events and the world wide web.
  - Achievement Standards
    - Process Strand 1
Documents

URI: http://igor.ziphoira.com:8080/ASN/resources/SX4

Date created:  
Authority status: Original Statement
Indexing status: Non-indexable Statement
Year level: Year 8
Statement label: Theme
Statement description: What is the meaning of life?

Identifier:
Elaboration:
Author:
License:
Rights Statement:

Pocket
History Draft Curriculum Note that all statements ...
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**Identifier:**

**Elaboration:**

**Clipboard**

- What is the meaning of life?
- History Draft Curriculum
Schools online thesaurus (ScOT)

- Language
- Arts
- Science
- Education

Narrower statement Year level Subject

Save
Mesaurus (SCOT)

Language
Arts
Science
Education
History
Technology
Society
Health

Narrower statement Year level Subject

Save

Clipboard
What is the meaning of life?
History Draft Curriculum
Elaboration:
Author:
License:
Rights Statement:
Topic:
Narrower statement Year level Subject

Save

Clipboard
What is the meaning of life?
History Draft Curriculum
<!-- Concept: Year 5 -->
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<!-- Concept: Year 6 -->
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Advancement of Science (AAAS); the Science Benchmarks from Project 2061 of the AAAS; the National Research Council's National Science Education Standards; and Science Curriculum Standards from Massachusetts, Singapore, South Carolina, and Indiana (K-8).
http://igor.zepheira.com:8080/ASN/resources/D1000338

A Sample ASN Document
http://igor.zepheira.com:8080/ASN/resources/Dt72bb0dbaf1x11

Benchmarks for Science Literacy 1993 Version
Project 2061's benchmarks are statements of what all students should know or be able to do in science, mathematics, and technology by the end of grades 2, 5, 8, and 12. The grade demarcations suggest reasonable checkpoints for estimating student progress toward the science literacy goals outlined in SFAA.
http://igor.zepheira.com:8080/ASN/resources/Dt724df3c5d53x0

Benchmarks for Science Literacy Current Version
Project 2061's benchmarks are statements of what all students should know or be able to do in science, mathematics, and technology by the end of grades 2, 5, 8, and 12. The grade demarcations suggest reasonable checkpoints for estimating student progress toward the science literacy goals outlined in SFAA.
http://igor.zepheira.com:8080/ASN/resources/Dt724df3c5d53x1
1. The Nature of Science
   a. The Scientific Worldview
   - By the end of the 2nd grade, students should know that
   - When a science investigation is done the way it was done before, we expect to get a very similar result.
   - Science investigations generally work the same way in different places.
When a science investigation is done the way it was done before, we expect to get a very similar result.
When a science investigation is done the way it was done before, we expect to get a very similar result.
Advancement of Science (AAAS); the Science Benchmarks from Project 2061 of the AAAS; the National Research Council's National Science Education Standards; and Science Curriculum Standards from Massachusetts, Singapore, South Carolina, and Indiana (K-8).
http://igor.zepheira.com:8080/ASN/resources/D1000338

A Sample ASN Document
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Benchmarks for Science Literacy 1993 Version
Project 2061's benchmarks are statements of what all students should know or be able to do in science, mathematics, and technology by the end of grades 2, 5, 8, and 12. The grade demarcations suggest reasonable checkpoints for estimating student progress toward the science literacy goals outlined in SFAA.
http://igor.zepheira.com:8080/ASN/resources/Dt124df3c5d53x9

Benchmarks for Science Literacy Current Version
Project 2061's benchmarks are statements of what all students should know or be able to do in science, mathematics, and technology by the end of grades 2, 5, 8, and 12. The grade demarcations suggest reasonable checkpoints for estimating student progress toward the science literacy goals outlined in SFAA.
http://igor.zepheira.com:8080/ASN/resources/Dt124df3c5d53x1
The Nature of Science

A. The Scientific Worldview
   - By the end of the 2nd grade, students should know that when a science investigation is done the way it was done before, we expect to get a very similar result.
   - When a science investigation is done again in a different place, we expect to get a very similar result.
When a science investigation is done the way it was done before, we expect to get a very similar result.
1. The Nature of Science
   A. The Scientific Worldview
      - By the end of the 2nd grade, students should know that when a science investigation is done the way it was done before, we expect to get a very similar result.
      - When a science investigation is done again in a different place, we expect to get a very similar result.
1. The Nature of Science
   A. The Scientific Worldview
      - By the end of the 2nd grade, students should know that
        • When a science investigation is done the way it was done before, we expect to get a very similar result.
        • When a science investigation is done again in a different place, we expect to get a very similar result.
When a science investigation is done again in a different place, we expect to get a very similar result.
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**Clipboard**
Thank You Questions?

The Achievement Standards Network Resource Description Editor and the ASN Toolkit have been made possible through collaboration and support from the following organizations: