DC Metadata is alive and well
(and has influenced a new standard for education)

Liddy Nevile
DC Metadata and the MLR –
ISO/IEC 19788
Metadata for Learning Resources

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Standards Bodies

- The field of standards for education is broad and, in general, operates at many levels, from the international to the very local and specific.
- Bodies such as DCMI, IMS Global Learning, ISO/IEC, and others work in parallel with regional bodies, CEN etc.; national bodies, Standards Australia; sectoral bodies, the NSW Education Department, and school boards and schools themselves.
ISO/IEC Processes and Pubs

- The formal path for standards
- The fast tracks for standards
- Adoption of standards where they are to be applied
- Publication and sales of standards
Australia

- the Educational Network of Australia (EdNA) was established in 1995, and
Australia

• work on the Victorian education resourcing channel in 1999
  – with some extra terms for education specifically, and others generally, and
  – the idea of an application profile.
Application profiles & the Abstract Model

• Rachel Heery and Manjula Patel wrote a paper establishing application profiles, *Application Profiles: Mixing and Matching Metadata Schemas*

• Pretty soon there was work on an abstract model for DC metadata, leading in 2004 to its publication.
The LOM Alternative

• DC approaches to educational resources have always competed with Learning Object Metadata (LOM) based approaches
• but, the LOM was too complicated for many,
• and the LOM does not interoperate well with DC or RDF based metadata.
IEEE LOM

- The IEEE 1484.12.1 - 2002 Standard for Learning Object Metadata was published
IMS and the LOM

- IMS GLC worked on their Learning Resource Meta-data specification, contributed to IEEE work but at first differed and then all came together for the LOM and IMS LRM Version 1.3
- There was a proliferation of application profiles of the LOM.
- Finally, there was convergence around the IEEE XML bindings of the LOM.
ISO/IEC JTC1 SC36

- In 1999, SC36 was formed to work on standards for educational technology (ITLET).
- By 2004, SC 36 was working on a new standard to be the MLR, led by Canada, and benefitting from the work already done within a wide range of contexts.
- By 2008, it was clear that the LOM and DC approaches were not interoperable.
2008

• Mikael Nilsson published work showing that only by working at the RDF level, could the various ‘standards’ for educational resources be interoperated.

• SC 36 decided to move from full compliance with the LOM and hopeful interoperability with DC metadata to full compliance with DC metadata and ‘best’ compliance with the LOM.
ISO/IEC 19788

- Part 1: Framework
- Part 2: Dublin Core elements
- Part 3: Basic application profile
- Part 4: Technical elements
- Part 5: Educational elements
- Part 6: Availability, distribution, and intellectual property elements
- Part 7: Bindings
- Part 8: Data elements for MLR records
- Part 9: Data elements for Persons
- Part 10: Application Profile for Access, Distribution and Intellectual Property (WIPO compliant) elements
Part 1: Framework

• 19788-1 is the Framework for MLR so it says only how to specify data elements, Application Profiles, data element groups, etc... This makes Part 1 equivalent, in some ways, to the DC 'Abstract Model'.

• The MLR defines data element definition.

• The scope statement (19788-1 s. 1) says ISO/IEC 19788 provides data elements for the description of learning resources and resources directly related to learning resources. (ISO/IEC 19788-1, 2010)
Figure C.2 — Concept map for Data Elements

Data Element

- is described in a
- Data Element Specification

has part

- Language Code
  - with status
  - Conditional

Data Element Specification ID

- Subject
  - belongs to
  - Domain

Content Value

- belongs to
  - Range

Literal

Non-Literal
  - of type
  - URI
Part 2: adoption of DC terms

• As the MLR is fully RDF conformant, but also should work as best it can with XML/LOM, there has been an effort to tighten features that were once loose in the DC (DCMI is also doing this work).

• E.g. making the name of the term (data element) non-linguistic
Part 5: Educational Terms

- These are educational terms that were selected by the educational community who developed a complex model of their needs.

- As always, the practitioners and the techies have different perspectives and so it is important, but not easily done, that each achieves their goal in a satisfactory way.
Part 3: LOM/MLR Interoperability

• MLR Part 3 offers an informative crosswalk from the LOM to the MLR (19788-3, Annex C1).

• There are also crosswalks in the annexes of 19788-5.

• For the future, SC36 has decided to provide information about how to transform LOM metadata into MLR-conformant metadata rather than trying to maintain the two in parallel.
# DC/MLR Interoperability

**TABLE 1: DCMI to ISO/IEC 19788 MLR Crosswalk of ‘educational’ data elements**

<table>
<thead>
<tr>
<th>Dublin Core</th>
<th>ISO_IEC Identifier</th>
<th>MLR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td></td>
<td>Name</td>
</tr>
<tr>
<td>audience</td>
<td>19788-5:2012::DES0400</td>
<td>audience language</td>
</tr>
<tr>
<td></td>
<td>19788-5:2012::DES2500</td>
<td>maximum age</td>
</tr>
<tr>
<td></td>
<td>19788-5:2012::DES2600</td>
<td>minimum age</td>
</tr>
<tr>
<td>coverage (spatial/temporal)</td>
<td>19788-2:2011::DES1400</td>
<td>coverage</td>
</tr>
<tr>
<td>educationLevel</td>
<td>19788-5:2012::DES0500</td>
<td>audience level</td>
</tr>
<tr>
<td>instructionalMethod</td>
<td>19788-5:2012::DES2400</td>
<td>learning method</td>
</tr>
<tr>
<td>mediator</td>
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<td>audience role</td>
</tr>
<tr>
<td>subject</td>
<td>19788-5:2012::DES1200</td>
<td>curriculum topic</td>
</tr>
</tbody>
</table>
Use of MLR

• The parts define the rest of the standard...
• There are various application profiles to be used and extended
• It provides a way of doing metadata work for SC 36
• The terms in the MLR are published by SC 36 WG 1
Availability of MLR

- Policy of selling standards
- Publicly available standards

http://standards.iso.org/ittf/PubliclyAvailableStandards/index.html

- Finding standards from other sources (esp. where they are adopted locally, eg CEN, Standards Australia, etc...)
An Example

• ISO/IEC 24751 is a standard for describing the accessibility of resources and the requirements of users so they can be matched.

• 24751 is being re-written with an application profile that is designed to be fully MLR compliant.
Thank you for your attention -

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