

LRMI Metadata for IEEE P2881

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Learning Resource Metadata Initiative

Properties, classes, concept schemes to describe educational characteristics of learning resources <https://www.dublincore.org/specifications/lrmi/>

DCMI Task Group to curate them

<https://www.dublincore.org/groups/lrmi-task-group/>

Development history of LRMI, 2011-2020

- 2011:** launch of schema.org a vocabulary for describing many aspects of many types of resource on the web
- 2011:** launch of LRMI project to develop a set of properties and classes to augment Schema.org for description of learning resources
- 2013:** LRMI terms added to schema.org
- 2014:** Curation and further development of LRMI transferred to DCMI.
LRMI 1.1 a DCMI Community Specification
- 2015:** LRMI Terms in RDF a DCMI Community Specification
- 2017:** LRMI Concept Schemes a DCMI Community Specification
- 2020:** Continue to curate LRMI in schema.org and DCMI spaces

So what is LRMI now? 1: terms & concept schemes

Properties

- learningResourceType
- teaches
- assesses
- educationalLevel
- educationalAlignment
- educationalUse(*)
- interactivityType(*)
- timeRequired
- typicalAgeRange
- isBasedOn
- license

Classes

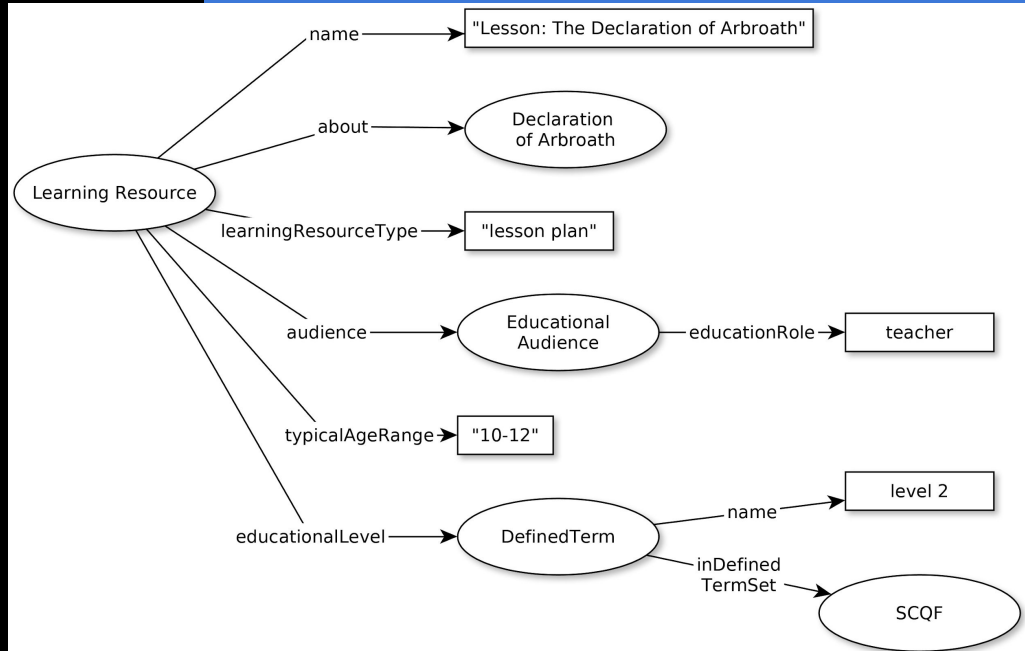
- LearningResource (*new!*)
- AlignmentObject
 - alignmentType(*)
 - educationalFramework
 - targetDescription
 - targetUrl
- EducationalAudience
 - educationalRole(*)

see <https://www.dublincore.org/specifications/lrmi/>
& <https://schema.org/LearningResource>

(* indicates concept scheme for this property)

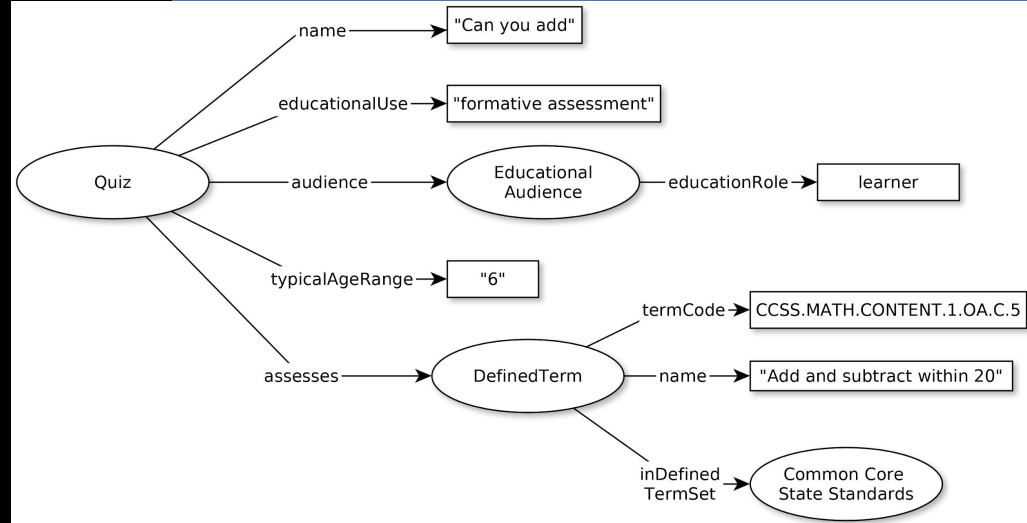
Example: a lesson plan

```
01 {
02   "@context": "https://schema.org/",
03   "@type": ["WebPage", "LearningResource"],
04   "url" : "http://example.org/lessonplan",
05   "name": "Lesson: The Declaration of Arbroath",
06   "about": {
07     "@id": "https://www.wikidata.org/entity/Q598496"
08   },
09   "learningResourceType": "lesson plan",
10   "audience": {
11     "@type": "EducationalAudience",
12     "educationalRole": "teacher"
13   },
14   "typicalAgeRange": "10-12",
15   "educationalLevel": {
16     "@type": "DefinedTerm",
17     "name": "Level 2",
18     "inDefinedTermSet": {
19       "@type": "DefinedTermSet",
20       "name": "SCQF",
21       "url": "https://scqf.org.uk/"
22     }
23   }
24 }
```



Example: a Quiz

```
1 {
2   "@context": "https://schema.org/",
3   "@type": "Quiz",
4   "url" : "http://example.org/quiz",
5   "name": "Can you add?",
6   "educationalUse": "formative assessment",
7   "audience": {
8     "@type": "EducationalAudience",
9     "educationalRole": "learner"
10  },
11 },
12 "typicalAgeRange": "6",
13 "assesses": {
14   "@type": "DefinedTerm",
15   "name": "Add and subtract within 20",
16   "termCode": "CCSS.MATH.CONTENT.1.OA.C.5",
17   "inDefinedTermSet": {
18     "@type": "DefinedTermSet",
19     "name": "Common Core State Standards. Math.",
20     "url": "http://www.corestandards.org/Math/"
21   }
22 }
23 }
```



Ways forward from LRMI

- Adopt and adapt LRMI terms
- Liaise with schema.org (or similar) to include their terms(*)
- Create a profile of schema.org (or similar) + LRMI terms & concepts
- Liaise with the DCMI LRMI TG to improve LRMI where necessary

(* I am not affiliated with, and do not represent schema.org)

General recommendations (1)

1. An entity centric as opposed to record centric model;
2. Modeled as semantic metadata through commitment to RDF/RDFS (which includes emerging property-graph related specifications notably RDF*);
3. Syntax independent with non-normative examples in RDF/XML, Turtle, JSON-LD etc.);
4. Follow the Dublin Core 1-to-1 rule
 - i.e., a description describes one entity and one entity only (related to #1);
5. Commitment to supporting interoperability through the reuse of existing properties where appropriate and coining new properties only where necessary;

General recommendations (2)

6. Support semantic extensions to express local or community needs;
7. No defined constraints on properties and classes in the specification
 - e.g. no "mandatory", "repeatable" or record-like notions of field size limitations etc.;
8. Include no composite attributes (structured values);
 - e.g., no embedded VCARD records;
9. Define and maintain any needed value spaces (enumerations, classification schemes etc.) as separate RDF entities using W3C's SKOS Recommendation;
 - express them in instance data using an entity like `sdo:DefinedTerm` / `sdo:DefinedTermSet`;
10. Allow referencing of any appropriate value spaces defined by others that are identified by URI, including competency frameworks.

Thank You

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