hbz **Adrian Pohl**

KIM
Kompetenzzentrum
Interoperable Metadaten

Metadaten für OER im deutschsprachigen Raum

DINI-AG-KIM-Workshop , Mannheim, 30.03.2015.

OER im deutschsprachigen Raum: Produzenten

OERde: Produzenten

- Überschaubare Anzahl von Produzenten

- Unterschiedlichste Medientypen: Aufgaben, Tutorials, Kursunterlagen, Unterrichtseinheiten & Arbeitsblätter, MOOCs, Videoaufzeichnungen etc.

- Bisher Fokus auf Schulbereich, wenig Aktivität im Hochschulbereich

- Bibliotheken treten nicht in Erscheinung

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(O)ER im deutschsprachigen Raum: Metadaten

(O)ERde: Datenaustausch & Aggregation

- Akteure im Kontext Schulbildungsmedien:
  - AG Medien und Distribution / FWU
  - Elixier / Deutsches Institut für Internationale Pädagogische Forschung (DIPF)
  - SFIB (Schweiz)
- Akteure aus dem Hochschulkontext:
  - DINI AG KIM
  - ...?...

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(O)ER-Metadatenstandards

- Metadatenschemata:
  - Erweitertes Austauschformat (EAF)
  - LOM-Applikationsprofile: LOM-CH, LOM-EAF
- Klassifikationen:
  - EAF-Systematik
  - Elixier-Systematik
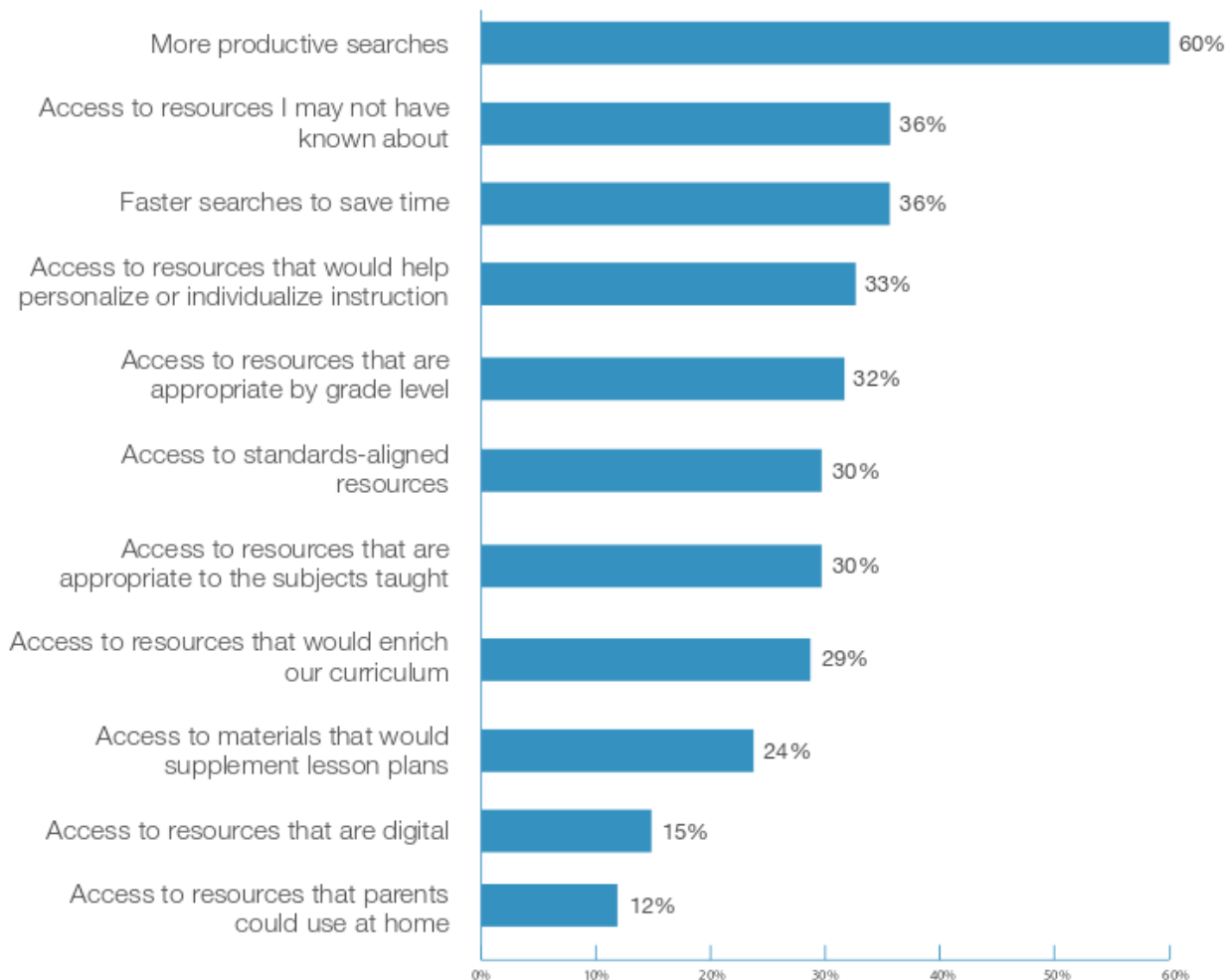- Andere: ISO/IEC 19788 „Metadata for learning resources"

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Warum überhaupt Metadaten?

Damit **relevante** OER **einfach** und **schnell** gefunden werden.

3. If educational resources were described with metadata in a way that enabled more precise searching and filtering, what do you see as the major advantages? Please check the 3 most important for you.
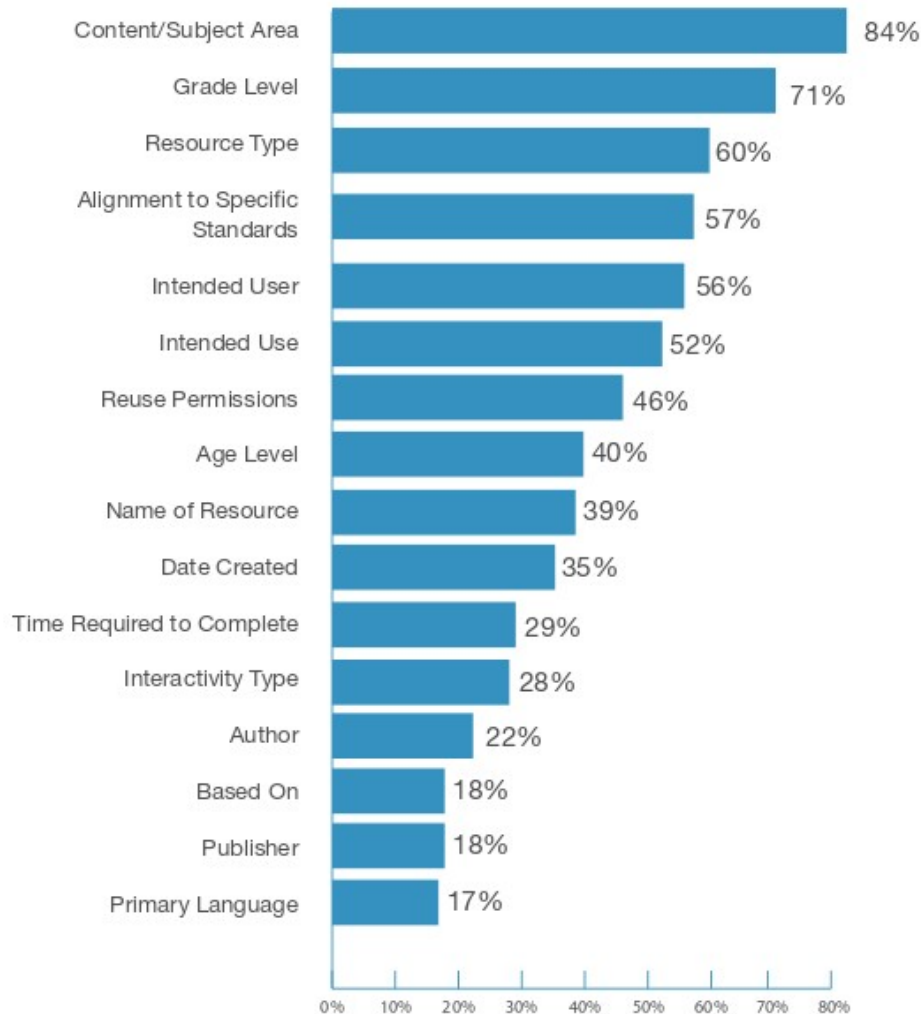
Advantages of Precise Searching and Filtering

Advantage	Percentage
More productive searches	60%
Access to resources I may not have known about	36%
Faster searches to save time	36%
Access to resources that would help personalize or individualize instruction	33%
Access to resources that are appropriate by grade level	32%
Access to standards-aligned resources	30%
Access to resources that are appropriate to the subjects taught	30%
Access to resources that would enrich our curriculum	29%
Access to materials that would supplement lesson plans	24%
Access to resources that are digital	15%
Access to resources that parents could use at home	12%

Welche Metadaten?

- Inhaltserschließung (Schlagwörter)

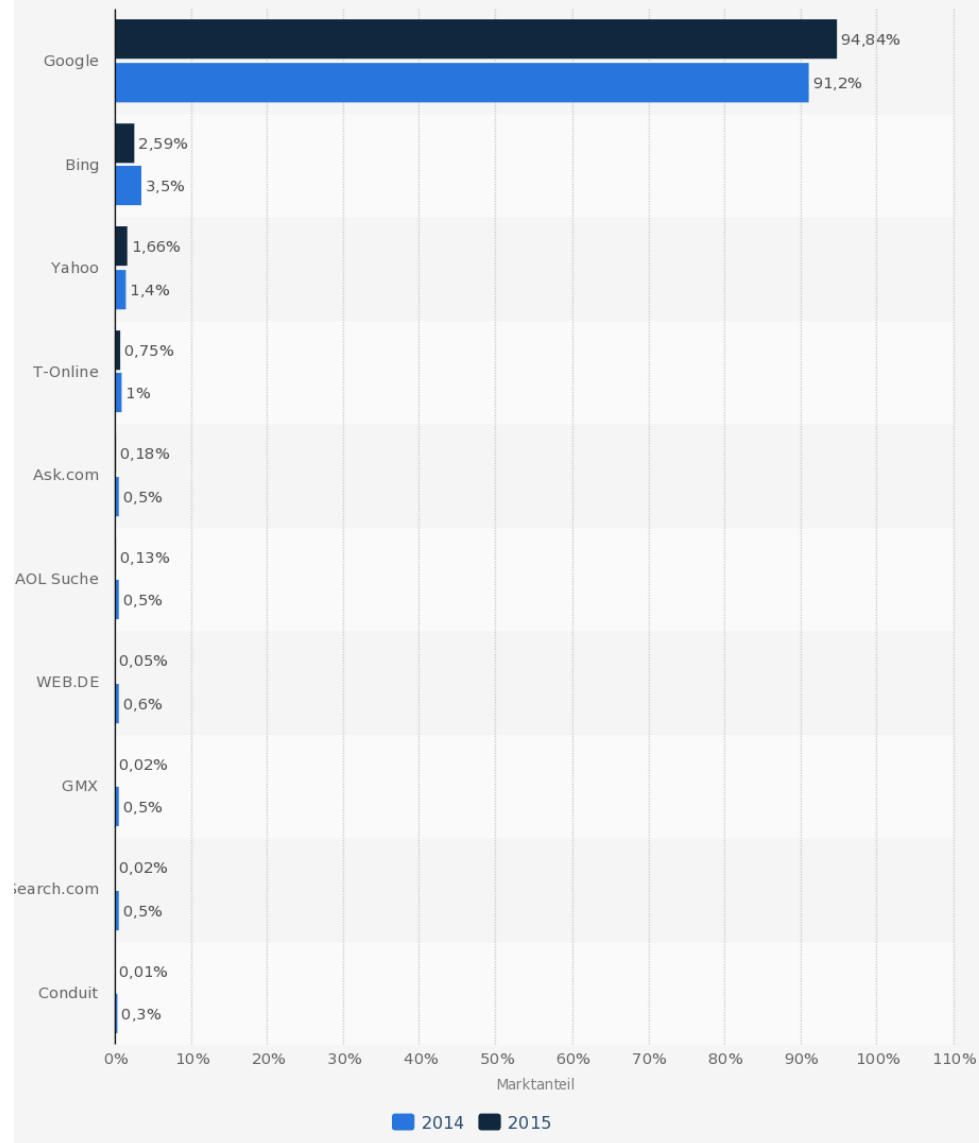- Lernstufe

- Ressourcentyp

- Lehrplanbezug

- ...

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5. What search criteria (in your opinion) would be most helpful in searching for educational resources online? Check all that apply.

Most Helpful Online Search Criteria

Criteria	Percentage
Content/Subject Area	84%
Grade Level	71%
Resource Type	60%
Alignment to Specific Standards	57%
Intended User	56%
Intended Use	52%
Reuse Permissions	46%
Age Level	40%
Name of Resource	39%
Date Created	35%
Time Required to Complete	29%
Interactivity Type	28%
Author	22%
Based On	18%
Publisher	18%
Primary Language	17%

Wo wird gesucht?

Suchmaschinenverteilung in Deutschland im Jahr 2015 (sowie Vorjahresvergleich)

Suchmaschine	2015	2014
Google	94,84%	91,2%
Bing	2,59%	3,5%
Yahoo	1,66%	1,4%
T-Online	0,75%	1%
Ask.com	0,18%	0,5%
AOL Suche	0,13%	0,5%
WEB.DE	0,05%	0,6%
GMX	0,02%	0,5%
Search.com	0,02%	0,5%
Conduit	0,01%	0,3%

Marktanteil

■ 2014 ■ 2015

Aber:

- OER-Metadaten sind meist nicht in Google.

- Google versteht kein LOM, LOM-EAF, LOM-CH, Elixier etc.

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Google versteht schema.org

schema.org:

- Ein allgemeines Vokabular zur Beschreibung von Dingen im Web

- Gemeinsame Anstrengung von Google, Yahoo!, Bing & Yandex

- Start: Juni 2011

Thing > CreativeWork

The most generic kind of creative work, including books, movies, photographs, software programs, etc.

Property	Expected Type	Description
Properties from CreativeWork		
about	Thing	The subject matter of the content.
accessibilityAPI	Text	Indicates that the resource is compatible with the referenced accessibility API (WebSchemas wiki lists possible values).
accessibilityControl	Text	Identifies input methods that are sufficient to fully control the described resource (WebSchemas wiki lists possible values).
accessibilityFeature	Text	Content features of the resource, such as accessible media, alternatives and supported enhancements for accessibility (WebSchemas wiki lists possible values).
accessibilityHazard	Text	A characteristic of the described resource that is physiologically dangerous to some users. Related to WCAG 2.0 guideline 2.3. (WebSchemas wiki lists possible values)
accountablePerson	Person	Specifies the Person that is legally accountable for the CreativeWork.
aggregateRating	AggregateRating	The overall rating, based on a collection of reviews or ratings, of the item.
alternativeHeadline	Text	A secondary title of the CreativeWork.
associatedMedia	MediaObject	A media object that encodes this CreativeWork. This property is a synonym for encoding.
audience	Audience	The intended audience of the item, i.e. the group for whom the item was created.
audio	AudioObject	An embedded audio object.
author	Person or Organization	The author of this content. Please note that author is special in that HTML 5 provides a special mechanism for indicating authorship via the rel tag. That is equivalent to this and may be used interchangeably.
award	Text	An award won by this person or for this creative work. Supersedes awards.
citation	CreativeWork or Text	A citation or reference to another creative work, such as another publication, web page, scholarly article, etc.
comment	Comment or UserComments	Comments, typically from users, on this CreativeWork.
commentCount	Integer	The number of comments this CreativeWork (e.g. Article, Question or Answer) has received. This is most applicable to works published in Web sites with commenting system; additional comments may exist elsewhere.
contentLocation	Place	The location of the content.
contentRating	Text	Official rating of a piece of content—for example,'MPAA PG-13'.
contributor	Person or Organization	A secondary contributor to the CreativeWork.
	Person or	The party holding the legal copyright to the CreativeWork.

LRMI (Learning Resource Metadata Initiative)

- Angeregt 2011 vom schema.org-Start

- Initiative der Association of Educational Publishers & Creative Commons

- Ziel: Integration in schema.org

- Seit 2014 ist LRMI ein Dublin-Core-Standard

LRMI-Spezifikation
vs.
LRMI-in-RDF
vs.
schema.org

The Specification

version 1.1

The LRMI specification is a collection of properties to describe educational resources. It builds on the extensive vocabulary provided by Schema.org. Predominantly it uses properties of resources of type schema.org/CreativeWork that were proposed to Schema.org by the LRMI to describe the educational characteristics of learning resources. For some of these properties it uses the LRMI-created types schema.org/AlignmentObject and schema.org/EducationalAudience.

Version 1.1 of the LRMI specification has been accepted into Schema.org with the exception of useRightsUrl [see discussion here]. Subsequently Schema.org adopted a property called license which encompasses the same function as useRightsUrl.

The LRMI project looked for inspiration, ideas, and learnings from other projects with similar visions in furtherance of its goal of interoperating with other specifications. As much as possible, contributors on those works were invited to participate in LRMI specification development. We wish to acknowledge and thank these initiatives for informing our work:

- IEEE Learning Object Metadata
- Dublin Core Metadata Initiative
- IMS Global Learning Consortium Learning Resource Metadata
- ARIADNE Educational Metadata Recommendation
- SCORM
- ISO/IEC Metadata for Learning Resources

Table 1. LRMI Additions to Schema.org/CreativeWork

Property	Expected Type	Description
educationalAlignment	schema.org/**AlignmentObject**	An alignment to an established educational framework.
educationalUse	schema.org/Text	The purpose of the work in the context of education. - Ex: "assignment" - Ex: "group work"
timeRequired	schema.org/Duration (ISO 8601)	Approximate or typical time it takes to work with or through this learning resource for the typical intended target audience. - Ex: "PT30M" - Ex: "PT1H25M"
typicalAgeRange	schema.org/Text	The typical range of ages the content's intended end user. - Ex: "7-9" - Ex: "18-"
interactivityType	schema.org/Text	The predominant mode of learning supported by the learning resource. Acceptable values are active, expositive, or mixed. - Ex: "active" - Ex: "mixed"
learningResourceType	schema.org/Text	The predominant type or kind characterizing the learning resource. - Ex: "presentation" - Ex: "handout"
useRightsUrl	schema.org/URL	The URL where the owner specifies permissions for using the resource. - Ex: "http://creativecommons.org/licenses/by/3.0/" - Ex: "http://publisher.com/content-use-description"
isBasedOnUrl	schema.org/URL	A resource that was used in the creation of this resource. This term can be repeated for multiple sources.

A note on useRightsUrl: this property was not adopted by schema.org. Subsequently schema.org adopted a property called license which encompasses the same functions as useRightsUrl (see below). The license property is likely to be more widely understood by consumers of schema.org mark-up than the LRMI useRightsUrl property.

Table 2. Other important characteristics of learning resources that are covered by Schema.org properties of CreativeWork

Property	Expected Type	Description
name	schema.org/Text	The title of the resource.
about	schema.org/Thing	The subject of the content.
dateCreated	schema.org/Date	The date on which the resource was created.

The Specification

version 1.1

The LRMI specification is a collection of properties to describe educational resources. It builds on the extensive vocabulary provided by Schema.org. Predominantly it uses properties of resources of type schema.org/CreativeWork that were proposed to Schema.org by the LRMI to describe the educational characteristics of learning resources. For some of these properties it uses the LRMI-created types schema.org/AlignmentObject and schema.org/EducationalAudience.

LRMI Metadata Terms in RDF

Community Specifications Committee

Title:
  LRMI Terms as RDF
Creator:
  LRMI Task Group (DC-Education Community)
Editors:
  Phil Barker
  Stuart Sutton
Identifier:
  http://dublincore.org/dcx/lrmi-terms/2015-02-09/
Current Version:
  http://purl.org/dcx/lrmi-terms/
Previous Version:
  http://purl.org/dcx/lrmi-terms/drafts/2014-11-30/
Date Issued:
  2015-02-09
Document Status:
  Community Specification
Description:
  The LRMI specification is a collection of classes and properties for markup and description of educational resources. The specification builds on the extensive vocabulary provided by Schema.org and other standards. LRMI terms not included in schema.org may nevertheless be used to augment and enrich Schema.org markup.
Turtle Serialization:
  http://dublincore.org/dcx/lrmi-terms/2015-02-09/lrmi-terms.ttl

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Table of Contents

Table 2. Other important characteristics of learning resources that are covered by Schema.org properties of CreativeWork

Property	Expected Type	Description
name	schema.org/Text	The title of the resource.
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dateCreated	schema.org/Date	The date on which the resource was created.

DCMI COMMUNITY SPECIFICATION

The Specification

version 1.1

The LRMI specification is a collection of properties to describe educational resources. It builds on the extensive vocabulary provided by Schema.org. Predominantly it uses properties of resources of type schema.org/CreativeWork that were proposed to Schema.org by the LRMI to describe the educational characteristics of learning resources. For some of these properties it uses the LRMI-created types schema.org/AlignmentObject and schema.org/EducationalAudience.

LRMI Metadata Terms in RDF

Community Specifications Committee

- ⊡ DCMI Home   ⊡ LRMI 1.1   ⊡ Return to Communi

Title:
> LRMI Terms as RDF

Creator:
> LRMI Task Group (DC-Education Community)

Editors
> Phil Barker
> Stuart Sutton

Identifier:
> http://dublincore.org/dcx/lrmi-terms/2015-02-0

Current Version:
> http://purl.org/dcx/lrmi-terms/

Previous Version:
> http://purl.org/dcx/lrmi-terms/drafts/2014-11-3

Date Issued:
> 2015-02-09

Document Status:
> Community Specification

Description:
> The LRMI specification is a collection of classes
> terms not included in schema.org may neverth

Turtle Serialization:
> http://dublincore.org/dcx/lrmi-terms/2015-02-0

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Table of Contents

Table 2. Other important characteristics of learning resources t

Property	Expected Type	Description
name	schema.org/Text	The title of the reso
about	schema.org/Thing	The subject of the c
dateCreated	schema.org/Date	The date on which t

ards. LRMI

Thing > CreativeWork

The most generic kind of creative work, including books, movies, photographs, software programs, etc.

Property	Expected Type	Description
Properties from CreativeWork		
about	Thing	The subject matter of the content.
accessibilityAPI	Text	Indicates that the resource is compatible with the referenced accessibility API (WebSchemas wiki lists possible values).
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accountablePerson	Person	Specifies the Person that is legally accountable for the CreativeWork.
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associatedMedia	MediaObject	A media object that encodes this CreativeWork. This property is a synonym for encoding.
audience	Audience	The intended audience of the item, i.e. the group for whom the item was created.
audio	AudioObject	An embedded audio object.
author	Organization or Person	The author of this content. Please note that author is special in that HTML 5 provides a special mechanism for indicating authorship via the rel tag. That is equivalent to this and may be used interchangeably.
award	Text	An award won by this person or for this creative work. Supersedes awards.
character	Person	Fictional person connected with a creative work.
citation	CreativeWork or Text	A citation or reference to another creative work, such as another publication, web page, scholarly article, etc.
comment	Comment or UserComments	Comments, typically from users, on this CreativeWork.
commentCount	Integer	The number of comments this CreativeWork (e.g. Article, Question or Answer) has received. This is most applicable to works published in Web sites with commenting system; additional comments may exist elsewhere.
contentLocation	Place	The location of the content.
contentRating	Text	Official rating of a piece of content—for example,'MPAA PG-13'.
contributor	Organization or Person	A secondary contributor to the CreativeWork.
copyrightHolder	Organization or Person	The party holding the legal copyright to the CreativeWork.
copyrightYear	Number	The year during which the claimed copyright for the CreativeWork was first asserted.
creator	Organization or Person	The creator/author of this CreativeWork or UserComments. This is the same as the Author property for CreativeWork.
dateCreated	Date	The date on which the CreativeWork was created.
dateModified	Date	The date on which the CreativeWork was most recently modified.
datePublished	Date	Date of first broadcast/publication.
discussionUrl	URL	A link to the page containing the comments of the CreativeWork.
editor	Person	Specifies the Person who edited the CreativeWork.
educationalAlignment	AlignmentObject	An alignment to an established educational framework.

Ein Beispiel

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Continuing classical Latin

This unit gives you the opportunity to hear a discussion of the development of the...

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Contents

Introduction

Learning outcomes

1 A History of Latin

Acknowledgements

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Continuing classical Latin

Introduction

This unit features a discussion that shows how languages develop – a spoken language is constantly undergoing change while written language is more conservative. In its second part it also looks at the evolution of Latin into the Romance languages: Italian, French, Spanish, Portuguese, Romanian and others.

The discussions throughout this unit are between Professor Geoffrey Horrocks and Dr James Clackson, both of the Faculty of Classics, Cambridge University.

This is an adapted extract from the Open University course *Continuing classical Latin* **(A397)**.

→ Next: **Learning outcomes**

```
<h1 property="schema:name" typeof="schema:Text">
Continuing classical Latin
</h1>
<span property="schema:learningResourceType">Free
Course</span>
<span class="hide">Featuring: </span>
<span property="schema:learningResourceType
">Audio</span>
```

Metadaten != Metadaten

- Unterschiedliche Beschreibungen für unterschiedliche Zwecke

- Schema.org
  - Publikation von strukturierten Beschreibungen im Web
  - Ziel: Verbesserung von Suchmaschinenrecherchen

Schema.org ist ein Metadaten*schema*

..., das heißt, es standardisisert Metadaten*elemente*.

```html
<h1 property="schema:name" typeof="schema:Text">
Continuing classical Latin
</h1>
<span property="schema:learningResourceType">Free
Course</span>
<span class="hide">Featuring: </span>
<span property="schema:learningResourceType
">Audio</span>
```

Was fehlt?

Was fehlt?

Vorgaben für die *Werte* der Metadatenelemente

```html
<h1 property="schema:name" typeof="schema:Text">
Continuing classical Latin
</h1>

<span property="schema:learningResourceType">Free
Course</span>
<span class="hide">Featuring: </span>
<span property="schema:learningResourceType
">Audio</span>
```

Ergänzen, was fehlt:

- Gruppe OER-Metadaten innerhalb der DINI-AG KIM (seit Herbst 2013)

- Fehlende Metadatenelemente ergänzen

- Empfehlung und Angebot von Normdaten & kontrollierten Vokabularen

  - Beispiele: Sprachangaben, Themen, Schulart Schulfächer, Dateiformat …

  - Auch hier gilt: Nachnutzen anstatt selbst erstellen und pflegen.

Namespaces (die bei den RDF-properties verwendet werden):

```
@prefix schema: <http://schema.org/> .
@prefix dc: <http://purl.org/dc/elements/1.1/> .
@prefix dcterms: <http://purl.org/dc/terms/> .
```

Element	Beschreibung	Wert* (ideal)	Kontrollierte Vokabulare	RDF-Properties	Elixier-Elemente	Anmerkungen
5.6 Alter (age range)	Alter der Zielgruppe, auf die sich die Ressource bezieht	S		schema:typicalAgeRange	alter_min; alter_max	
1.6 Autor (creator)	Personen und/oder Institutionen, die hauptverantwortlich für die Entstehung der Ressource sind			schema:creator	autor	
1.5 Beschreibung (description)		S		schema:description	beschreibung	
4.5 Vorschaubild	Vorschaubild der Ressource	U		schema:thumbnailUrl	bild_url	
5.5 Bildungsstufe (level/grade)		I	❓	schema:educationalAudience ❓	bildungsebene	
8.2 Mitwirkende	Beschreibung der Personen und/oder Institutionen, die zur Erfassung des Metadatensatzes beigetragen haben				einsteller	
8.1 Identifikator	Eindeutige Bezeichnung des Metadatensatzes				id_local	
5.7 Lehrplan (educational standard)					lehrplanbezug	• Zur struktur... Lehrplänen Standard "I... Definition of Educational Specificatio...
5.2 Typ (resource type)	Angaben zum Typ der Ressource	I	• Siehe auch die tabellarische Übersicht über verschiedene Klassifikationen von ER-Typen (sortierte Version) • mEducator Resource Type Taxonomy (siehe hier, S. 9f) • EAF-"Medianarten"-Tabelle : ftp://ftp.fwu.de/fwu/eaf/eafmed.txt • EAF-Medienklassifikation: ftp://ftp.fwu.de/fwu/eaf/eafmkl1.txt (Erläuterung der Systemstellen (rtf))	schema:learningResourceType	lernressourcentyp	
5.8 Lernzeit/Zeitaufwand (time required)	Geschätzte durchschnittliche Lern- oder Verwendungszeit der Zielgruppe für die Nutzung der Ressource	S	ISO 8601 verwenden	schema:timeRequired	lernzeit	

Auch wichtig:

Daten über OER-Akteure, -Dienste, -Veranstaltungen etc.

OER World Map

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Links

Applikationsprofil LOM-CH, Version 1.1:
http://biblio.educa.ch/sites/default/files/20140708/lom-chv1.1_de_0.pdf

EAF-Sachgebietssystematik: ftp://ftp.fwu.de/fwu/systematik/sgsyst-p.zip

Elixier-Systematik: http://www.bildungsserver.de/elixier/elixiersystematikliste.php

ISO/IEC 19788 Information technology – Learning, education and training – Metadata for learning resources. Einträge im ISO-Katalog unter http://www.iso.org/iso/home/search.htm?qt=19788&published=on&active_tab=standards.

LOM FINAL DRAFT STANDARD IEEE 1484.12.1-2002:
http://biblio.educa.ch/sites/default/files/20130328/lom_1484_12_1_v1_final_draft_0.pdf

schema.org: http://schema.org/

LRMI: http://lrmi.net

LRMI Survey Report. July 2014 Update:
http://www.lrmi.net/wp-content/uploads/2014/07/499-002_LRMI_2014_Education_Survey_Web.pdf

OER-Metadaten-Gruppe: https://wiki.dnb.de/x/IQ30B

OER-Metadaten-Empfehlungen (Entwurf): https://wiki.dnb.de/x/hq_kBQ

OER Worldmap: https://oerworldmap.org/

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Lizenz, Credits

Dank geht an Richard Wallis, dessen schema.org-Kurzpräsentationen für Teile dieser Folien als Strukturvorlage gedient haben, siehe etwa http://de.slideshare.net/rjw/why-schemaorg-for-libraries (publiziert unter einer CC-BY-Lizenz).

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