Comparison of metadata of THECB and other learning object repositories

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Metadata Information of Learning Object Repositories

1. **AMSER:** Applied Math and Science Education Repository which is released by the Internet Scout project team at the University of Wisconsin, and It is a part of National Science Digital Library Initiative. It uses modified DC as the metadata schema. The detail information about metadata sees **NSDL**. The Characteristic is it adopts **LC Classification, and GEM Subject**.
2. **ARIADNE** (European Knowledge Pool System) Developed to deliver educational content throughout Europe, the KPS facilitates the sharing and reuse of educational resources. Its metadata is an application profile of the **LOM** specification.
3. **CAREO** (Campus Alberta Repository of Educational Objects), and it uses the **CanCore** as its metadata schema.
4. **CITIDEL** (Computing and Information Technology Interactive Digital Educational Library) Created by a consortium led by Hofstra University , The College of New Jersey , The Pennsylvania State University, Villanova University , and Virginia Tech, CITIDEL functions as part of the Collections Track activities in the National SMETE (Science, Mathematics, Engineering, and Technology Education) Digital Library (NSDL). The detail information about metadata sees **NSDL**.
5. **Connexions** is an environment for collaboratively developing, freely sharing, and rapidly publishing scholarly content on the Web. It contains educational materials organized in small modules that are easily connected into larger collections or courses. Connexions metadata draws on the **Dublin Core Metadata Element Set**.
6. **CLOE** (Co-operative Learning Object Exchange) is a collaboration between Ontario universities and colleges for the development, sharing, and reuse of multimedia-rich learning resources. Metadata are created by submitting users. CLOE's metadata schema is drawn from **IEEE LOM**.
7. **DLESE** (The Digital Library for Earth System Education) is a distributed community effort involving educators, students, and scientists working together to improve the quality, quantity, and efficiency of teaching and learning about the Earth system at all levels. It uses the **AND** (ADEPT/DLESE/NASA Alexandria Digital Earth Prototype/Digital Library for Earth System Education/National Aeronautics and Space Administration), which is a hybrid of the Dublin Core and IMS metadata frameworks that is suitable to the diverse audiences of DLESE, NASA and ADEPT.
8. **EducaNext** is a service supporting the creation and sharing of knowledge for Higher Education. It is open to any member of the academic or research community. Its metadata is based upon Dublin Core, and IEEE LOM.
9. **edna (Education Network Australia)** is a joint initiative of the Australiaian state and territory governments and the Australian Government, through their education departments, to provide free news, resources, networks and online tools for educators. EdNA metadata schema draws on the Dublin Core, which is consistent with the Australian Government Locator Service (AGLS)
10. **Exploratories** goal is to begin the groundwork for a next-generation approach to Web-based educational software. Its metadata is based on NSDL metadata schema. The detailed information sees **NSDL metadata**.

11. **GEM (Gateway to Educational Materials)** Established in 1997 and funded by the U.S. Dept. of Education, GEM gives users access to a collection of over 35,000 materials for the aid of educators. Materials within the GEM collection are found on various federal, state, university, non-profit, and commercial Internet sites and range over all educational levels and subjects. The contents of the GEM collection are made up of "quality lesson plans, curriculum units and other educational resources on the Internet." GEM Metadata, the schema for whichis based on the Dublin Core Metadata Element Set, are created using a downloadable interface called GEMCat.
12. **Harvey Project** An international collaboration of educators, researchers, physicians, students, programmers, instructional designers and graphic artists working together to build interactive, dynamic human physiology course materials on the Web. It uses **IMS metadata** which is consistent with **IEEE LOM**.
13. **iLumina** is a digital library of sharable undergraduate teaching materials for chemistry, biology, physics, mathematics, and computer science. It is designed to quickly and accurately connect users with the educational resources they need. These resources range in type from highly granular objects such as individual images and video clips to entire courses. iLumina metadata is drawn from **the IEEE LOM**
14. **Intute: Arts and Humanities** online service providing you with access to the best Web resources for education and research, selected and evaluated by a network of subject specialists. **Intute: Science, Engineering and Technology** is a free online service providing you with access to the very best Web resources for education and research, evaluated and selected by a network of subject specialists. It covers the physical sciences, engineering, computing, geography, mathematics and environmental science, and was created by bringing together three of the Hubs of the Resource Discovery Network (RDN): EEVL (Engineering, Mathematics and Computing), GEsource (Geography and Environment), and PSIgate (Physical Sciences). **Intute's** metadata schema is based on RDN hub guidelines which are based on Dublin Core, RLLOMAP, AACR2 and the RDA where relevant.
15. **Jorum** is a free online repository service for teaching and support staff in UK Further and Higher Education Institutions, helping to build a community for the sharing, reuse and repurposing of learning and teaching materials. **Jorum** uses automated metadata based on UK LOM Core which is consistent with LOM.
16. **MERLOT** (Multimedia Educational Resource for Learning and Online Teaching) contains more than 12,000 LOs. Its metadata record structure and fields are developed from the IMS Learning Resource Metadata **(IMS LRM**) Specification and **IEEE LOM**. Labels presented to users include but are not limited to: Material Type, Technical Format, Cost Involved, Location, Date Added, Date Modified, Author, Submitter, Description, Categories, Primary Audience, Technical Requirements, Language, Copyright, Source Code Available, and Section 508 Compliant. An example of a metadata record in XML format is at http://www.imsproject.org/metadata/mdv1p2p2/samples/merlot/MERLOTexample1_schema.xml.
17. Built by the Maricopa Community College in Arizona, the **MLX** (Maricopa Learning Exchange) provides access to over 500 materials on various subjects, ranging from teaching materials and pedagogical tips to links to sites containing educational content. The entity level is "package" as a whole that ranges from as small as a spreadsheet activity designed for a chemistry lab exercise to a complete faculty development program. MLX is fully searchable by title,

person names, discipline, college, and description. Elements include but are not limited to: Item, Contact, Credits, College(s), Discipline(s), Summary, Details, Web Links, Supplements (including rights), Comments, Shareback (a "Shareback" cites the places on the web that mention, reference, or use this MLX package), and Extra.

18. **NSDL** (National Science Digital Library) was created by the National Science Foundation to provide organized access to high quality resources and tools that support innovations in teaching and learning at all levels of science, technology, engineering, and mathematics education.
19. **The Orange Grove** is an operational repository project of the Florida Distance Learning Consortium (FDLC). The learning object repository provides a single point of access for learning resources designed to be used by Florida's K20 teachers and educational institutions. It is currently being used by Florida community colleges and universities. Current metadata standard is Southern Regional Education Board's **SCORE** documentation. This standard is based on IEEE Learning LOM and uses **LOM** and **GEM** controlled vocabularies.
20. **The SMETE** Open Federation was formed to promote the teaching and learning of science, mathematics, engineering and technology at all levels. The SMETE Digital Library provides access to teaching and learning materials as well a community of science, math, engineering and technology explorers of all ages. The SMETE DL is developing a general-purpose item-level metadata cataloging tool to catalog digital learning resources based on an arbitrary, user-specified XML schema. Its metadata scheme is based on **IEEE LOM** and **IMS**. Here is an example of a metadata record in XML format. Labels presented to users include: Title, Authors, Subject, Description, URL, Possible Use, Audience/Grade, Platform/Format, Cost, Copyright and Use Restrictions, Average Rating, and Keywords.
21. **TLF** (The Learning Federation) is funded by the Australian Government. It employs emerging technologies to develop high-quality online curriculum content for years P-10 in two formats: interactive, multimedia learning objects and digital resources. The materials are designed to engage students and support teachers and will be freely available to all schools in Australia and New Zealand. TLF metadata standard is based on **Dublin Core v1.1**, **EdNA Metadata Standard v1.1** (http://www.edna.edu.au/edna/go/resources/metadata/pid/261), and IEEE **LOM v1.0**. Here are the TLF Metadata Application Profile; the Elements and input rules; and the Rights Management Specification.
22. The **VCILT** (Virtual Center for Innovative Learning Technologies) Learning Objects Repository (LOR) project aims to build a web site where learning resources (learning objects) from the University of Mauritius and from the Internet are gathered for later use. It is to address the issues of duplication of effort, lack of organization, and the relatively small authoring community. These resources are accessible freely through the LOR web site. The LOR allows instructors to illustrate courses with references and enable students to access the referenced objects in a specific context. Staff and Instructors from the University of Mauritius and VCILT members will have the permission to add new learning objects, comments (general and technical) and pedagogies, or to add learning objects reference to existing learning objects. The LOR currently contains over 400 learning objects. Labels on the record presented to users include Reference, Keyword(s), Author(s), Language, Format, Level, Module Code, License, Type, Source Availability, Comments, and Pedagogy. The LO name, LO number, submitter, submission date and time, the link to the LO, and a brief summary of content are also provided on the record (An example

http://vcampus.uom.ac.mu/lor/display_lo.php?menu=1&loref=475). Keyword, Submitter, Author, Language, Date of submission, File format, Type, Educational Level and Number of LO are searchable fields.

23. The **Wisconsin Online Resource Center** is a digital library of Web-based learning resources developed primarily by faculty from the Wisconsin Technical College System (WTCS) and produced by multimedia technicians who create the learning objects for the online environment. Resources are accessible to all WTCS faculty for free and with copyright clearance for use in any WTCS classroom or online application. Other colleges, universities, and consortia from the United States and around the world use the library with permission. At present, 355 WTCS faculty members have authored learning objects. The Wisc-Online digital library currently contains 2266 learning objects, which are designed and developed by a team of instructional designers, editors, technicians, and student interns. Most objects are built in the latest version of Macromedia Flash to optimize the finished objects for the Web. The digital library is housed at Fox Valley Technical College (FVTC) in Appleton, Wisconsin. Types of LOs include: assessment, animations, simulations, case studies, interactions, drill and practice, and templates
24. FAO LR, Food and Agriculture Organization Learning Resources, is a project started from 2006. The aim of the Portal is to provide structured access to information on capacity and institution building services and learning resources of FAO. Its metadata schema is based on DC and LOM. Some element qualifiers are from AGS (Agricultural Metadata Element Set)

Simple analysis and suggestions

In the above 14 (include THECB LOR) learning object repositories' metadata applications, **14** out of 14 have the metadata elements: **Title, Subject, description, Learning object type, Authors or creator, Rights,** although the human readable labels may be different. **13** out of 14 applications use **identifier (URL)** to uniquely point to the resource. **11** out of 14 repositories have the **Technical Requirement** element. **10** out of 14 repositories show **media format**, **9** out 14 repositories use **Typical Learning Time** and **Interactivity Level** elements, **6** out of 14 repositories use **Interactivity Type** element and **Difficulty Level** element, and **3** out of 14 repositories use the **Teaching Methods** element.

4 out of 14 repositories has **Aggregation Level** element which is expressed in LOM standard as 1.8 Aggregation Level and belongs to the 1.General. Currently THECB LR does not use this element but the granularity of the Learning Objects is expressed by different levels of collections, e.g. Unit, Lesson, Topic, etc. The problem is when users browse learning objects they can not recognize the granularity of these objects. In the usability test report also points out some users do not know up the topics there are lessons, or under lessons there are topics available. So we recommend the II phase project to adopt lom.general.aggregationLevel, lable as **Granularity**. The values can be **course, unite, lesson, topic, asset, package**. Currently THECB LR's Meida Format includes multimedia, video, audio, and text four values. We recommend **add a value** to express the flash slides, the value name may be **animation** or **flash**. The reason is multimedia can be used to express a lesson, course, even a topic, and it will be more clear to users that flash slides are expressed as animation or flash.

Brief metadata comparison table of THECB LOR with other LORs

(Table 1, continued)

THECB LOR	GEM	Edna	ARIADNE	CAREO	iLumina	DLESE
Title	Title	Title	Title	Title	Title	Title
Other Title	Alternative	Alternative				
Course Structure	Is Part Of	Is Part Of		Is part Of	Is part Of	
Discipline and Subdiscipline	Standards		Main Discipline Sub Discipline	Taxon	Taxon	
Subjects	Subject and Keywords	Subject	main concept concept synonyms other Important concepts	Key Word	Key Word	Subject
Summary	Abstract	Description	Description	Description	Description	Description
Learning Object's Content	Table of Contents	Description	Description	Description	Description	
Language	Lauguage	Lauguage	Language	Language	Language	Language of the resource
Intended Educational Audience	Audience Education Level	Audience	User Type	Intended End User Role	Intended End User Role	Audience
Learning Object Type	Resource Type	Type	Document Format	Learning Resource Type	Learning Resource Type	Resource type
Instructional Method	Teaching Methods					
Interactivity Type			Document Type			Interactivity type
Interactivity Level			Interactivity Level	Interactivity Level	Interactivity Level	Interactivity level
Typical Learning Time	Duration		Pedagogical Duration	Typical Learning Time		Typical learning time
Difficulty Level			Difficulty Level			
Technical Requirement	Platform		Operating System OS Version	Other Platform Requirements	Technical Requirement Other Platform Requirements	Technical Requirements
Media Format		Format	Media Types	Format	Format	
Authors	Author	Creator	Authors	Authors	Authors	Resource Creator
Author's Affiliation					Contributors	
Other Contributors	Annotator Artist Catographer Composer Creator Editor Interviewer Narrator	Contributor		(Either one from the values)		

	Photographer Reviewer Sponsor					
Date Published	Date Accepted	Date	Date	Date	Date	Creation date
Publisher	Publisher	Publisher		Publisher	Publisher	
Creation and Ownership Information	Provenance					
Rights	Rights Management	Rights Management	Usage Remarks	Usage Remarks	Usage Remarks	
Access and Use Rights	Access Rights		Usage Rights	Cost	Cost	Cost
Access and Use License	License		Restrictions	Copyright and Other Restrications	Copyright and Other Restrications	Copyright
Rights Holder	Rights Holder					
Individual Cataloger	Individual Cataloger					Resource Cataloger
Domain Cataloger						Resource Cataloger
Date Issued	Date Issued	Issued				
Date Accessioned						
Date Available	Date Available					
Size	Extent	Extent	Required Disk Space	Size	Size	Size of the resoource
Format	Medium	Format				
URI	Identifier	Resource Identifier	Identifier	Identifier		URL or access information
IMS Content Package				URI	URI	Relationships between resources
Learning Object Description						Relationships between resources
	Age	Aggregation Leve	Granularity	Aggregation Level		Language of the metadata
	Beneficiary	Created	Header Author	Context	Structure	Copyrights of the metadata
	Mediator	Modified	Validator	Typical Age Range	Statues	Terms of use
	Spatial	Valid	Header Creation Date	Language (Educational)	Context	Metadata framework
	Temporal	Availability (How the resource can be obtained or contact information for obtaining the resource.)	Validation Date	Location	Location	Accession date
	Prerequisites	Function (The business function of the	Last Modified Date	Duration	Is Based On	Record status

		organisation to which the resource relates.)				
	Cataloging Organization	Coverage	Language	Version	Metametadata	Coverage
	Cataloging Tool	Jurisdiction	Installation Notes	(either from the values)	Taxon Source	Science standards
	Creator	Spatial	Other Constraints	(Either one of the values)		Geography standards
	Date Created	Temporal	Semantic Density	Purpose		Keywords
	Date Copyrighted	Postcode	Source	Source		Additional technical information
	Date Submitted	Mandate (A specific warrant which requires the resource to be created or provided)	Version Information	Keyword (Classification)		Duration of the resource
	Date Modified	Act	Annotations	Metametadata		Whom is the resource used by
	Date Placed Online	Regulation	Language/Language of each Annotation			Whom does the resource benefit
	Date Record Created	Case Law	Annotator			Instructional goal
	Date Valid	Relation	Creation date			
	Essential Resources	IS Version Of	Annotation			
	Bibliographic Citation	Has Version	Science Type			
	Public ID	Is Replaced By		Annotation		
	SID	Replaces				
	SDN	Is Required By	Main Concept			
	Conforms TO	Requires	Concept Synonoyms			
	Bibliographic Information	Has Part	Other Important Concepts			
	Other Format	Is Referenced By	Didactical Context			
	Has Part	References				
	Has Version	Is Format Of				
	Child Of	Has Format				
	Content Rating	Is Basis For				
	Date	Is Based On				

	Derived From	Source (A reference to a resource from which the present resource is derived.)				
	Format Of	Category (The generic type of the resource being described.)				
	Order Information	Document Type				
	Overview	Service Type				
	Parent					
	Is Part Of					
	Peer Review					
	Referenced By					
	Replaced By					
	Required By					
	Revision History					
	Sibling					
	Resource Selection Criteria					
	Sponsored By					
	Is Version Of					
	References					
	Replaces					
	Requires					
	Price Code					
	Source					

Brief metadata comparison table of THECB LOR with other LORs

(Table 2)

THECB LOR	Educanext	Intute	Jorum	NSDL	Orange Grove	TLF	FAO LR
Title	Title	Title	Title	Title	Title	Title	Title
Other Title		Alternative titles					Supplement Title

Course Structure		Is Part Of					
Discipline and Subdiscipline			Discipline		Taxon Path		
Subjects	Classification	Keywords (controlled) Keywords(uncontrolled)	Keyword	Subject Keywords	Keywords	Keywords	Subject/FAO Categories Subject/Keywords
Summary	Description	Description	Description	Description	Description	Description	Abstract
Learning Object's Content	Description	Description	Description	Description	Description	Description	
Language	Learning Resource Language	Lauguage	Lauguage	Language	Language	Language	Language
Intended Educational Audience		Audience		Intended Audience	Intended End User Role	Audience	Intended End User Role
Learning Object Type	**Learning Resource Type:** Educational Material Type Educational Activity	Resource types	Learning Resource Type	Type	Learning Resource Type	Learning Resource Type	Type
Instructional Method	Method of Instruction						
Interactivity Type			Interactivity Type	Interactivity Type	Interactivity Type		
Interactivity Level			Interactivity Level	Interactivity Level	Interactivity Level		Interactivity Level
Typical Learning Time	Typical Learning Time			Typical Learning Time	Typical Learning Time		Typical Learning Time
Difficulty Level			Difficulty	Grade Level	Difficulty		
Technical Requirement	**Technical Requiremets:** Type of Technology Name of Technology Minimum Maximum	Technical requirements			Hardware / Software Requirements	Technical Requirement	
Media Format	Format			Resource Format	Format	Format	Format
Authors	Author	Resource creator	Author	Creator	Owner	Creator	Creator
Author's Affiliation							
Other Contributors	Contributors	Resource publisher		Contributor	Contribute Entity	Contribute Entity	
Date Published		Date resource created	Date	Date Published		Date	Date

Publisher				Publisher / Resource Provider			Publisher
Creation and Ownership Information							
Rights		Rights/copyright statement	Rights description		Rights Description		Rights
Access and Use Rights				Rights Information	Copyright and Other Restrictions		Cost
Access and Use License	UNIVERSAL license Agreement/ UNIVERSAL Restricted License Agreement		Copyrith and other Restrictions				
Rights Holder							
Individual Cataloger		Record creator ID					
Domain Cataloger							
Date Issued							
Date Accessioned							
Date Available							
Size	Size		Size		Size	Size	Size
Format		Format	Format				
URI		RUL	Identifier	Identifier	Identifier	General Identifier	Identifier
IMS Content Package				Relation		Identifier	Relation: Collection
Learning Object Description				Collection Information		Description	Relation: Collection
	Description Lauguage	Handle	Aggregation Level	Source	Coverage	Catalog Entry	Notes
	Default Classification System	Subject group	Vcard	Standards	Version	Coverage	Relation: Language version
	Location	Subgateways	Identifier (metaMetadata)	Coverage	Status	Version	Region
	Version	Classifications	Creator (metaMetadata)		Metadata Scheme	Status	Country
	Educational Objectives	County of origin	BEGIN: vcard (metaMetadata)		Catalog Entry	Status Remark	Context
	Location of Additional	Administrator name	Date (metaMetadata)		Remote Location	Contribution Remark	

	Information						
	Curriculum	Administrator email	Metadata scheme (metaMetadata)		Duration	Metadata Language	
	Prerequisites	ISBN	Language (metaMetadata)		Learning Context	Kind	
	ECTS cREDITS	ISSN	Location		Typical Age Range	Resource	
		Period	Intended End User Role		Use Description	Topic	
		Geographic name	Context		Annotation Description	Curriculum	
		Latitude	Typical Age Range		Cost	Learning Area	
		Longitude	Description		Purpose	Strand	
		Educational level			Metadata Language	Content/Concept	
		Relationships				Skills/Process	
		Flag				Student Activity	
		Record source				Learning Design	
		Comments				Audience Type	
		Status				Audience Sector	
		Date record created				User Level	
		Date for review				Annotation	
		Relationships: Is format of Has format Has part References Is referenced by Is version of Has version Replaces Is replaced by				Annotation Person	
						Annotation Date	
						Annotation Description	
						Key Learning Objectives	
						Educational Value	
						Installation Remarks	

						Other Platform Requirements	
						Duration	
						Web Accessibility Initiative Checkpoint	
						Access Profile	
						Educational Value	

Detailed metadata comparison table of THECB LOR with other LORs

1. Comparison of metadata elements used in THECB LOR and GEM (Gateway to Educational Materials)

Mandatory (M) Mandatory if applicable (MA**)** Strongly recommended (R**)** Optional (O)
Mystem-supplied (SS) Repeatable (R) Not repeatable (NR) Conditional (C)

THECB LOR			**GEM**		
Label	**Source**	**Note/ Value**	**Label**	**Source**	**Note / Value**
Title	dc.title	M, NR	Title	gem.title	MR
Other Title	dc.title.alternative	MA, R	Alternative	gem.title.alternative	OR
Course Structure	dc.relation.isPartOf	MA, R	Is Part Of	gem.relation.isPartOf	OR
Discipline and Subdiscipline	lom.classification.taxonPath.taxon	M, R	Standards	gem.standards	
Subjects	dc.subject	M, R/ locally developed	Subject and Keywords	gem.subject	AR / **ERIC** or **GEM-S**
Summary	dc.description.abstract	MA, NR	Abstract	gem.description.abstract	OR
Learning Object's Content	dc.description.tableOfConents	O, NR	Table of Contents	gem.description.tableOfContents	OR
Language	dc.language	MA, NR	Lauguage	gem.lauguage	CR/ **RFC1766** **ISO 639-2**
Intended Educational Audience	dc.audience.educationLevel	M, NR	Audience Education Level	gem.audience.educationLevel	AR/ **GEM-LEVEL**
Learning Object Type	dc.type	M, NR/	Resource Type	gem.type	M/ **GemType** or **DCMIType**
Instructional Method	dc.instructionalMethod	M, R	Teaching Methods	gem.instructionalMethod.teachingMethods	M/ **GEM-TM**
Interactivity Type	lom.educational.interactivityType	M, R			
Interactivity Level	lom.educational.interactivityLevel	M, NR			
Typical Learning Time	lom.educational.typcialLearningTime	M, NR	Duration	gem.duration	OR
Difficulty Level	lom.educational.difficulty	M, NR			
Technical Requirement	lom.technical.requirement	O, R	Platform	gem.format.platform	OR
Media Format	dc.format	O, NR			
Authors	DSpace defined as dc.contributor.author	MA, R	Author	gem.MARC_Author	OR
Author's Affiliation	v dc.contributor.affiliation	O, R			
Other Contributors	DSpace defined as dc.contributor.other	O, R	Annotator Artist Catographer Composer Creator Editor	gem.MARC_Annotator gem.MARC_Artist gem.MARC_Catographer gem.MARC_Composer gem.MARC_Creator gem.MARC_Editor	OR

			Interviewer Narrator Photographer Reviewer Sponsor	gem.MARC_Interviewer gem.MARC_Narrator gem.MARC_Photographer gem.MARC_Reviewer gem.MARC_Sponsor	
Date Published	dc.date.dateAccepted	MA, NR	Date Accepted	gem.date.dateAccepted	O/ **W3CDTF**
Publisher	dc.publisher	O, R	Publisher	gem.publisher	C
Creation and Ownership Information	dc.provenance	O, R	Provenance	gem.provenance	OR
Rights	dc.rights	M	Rights Management	gem.rights	OR
Access and Use Rights	dc.rights.accessRights	MA, NR	Access Rights	gem.rights.accessRights	OR
Access and Use License	dc.rights.license	O, NR	License	gem.rights.licens	OR
Rights Holder	dc.rights.rightsHolder	MA, NR	Rights Holder	gem.rightsHolder	OR
Individual Cataloger	gem.cataloging.individualCataloger	M, NR	Individual Cataloger	gem.cataloging.individualCataloger	A
Domain Cataloger	Locally defined as gem.cataloging.individualCatalogerDomain	M, NR			
Date Issued	DSpace defined as dc.date.dateIssued	SS	Date Issued	gem.date.issued	O/ **W3CDTF**
Date Accessioned	DSpace defined as dc.date.dateAccessioned	SS			
Date Available	DSpace defined as dc.date.dateAvailable	SS	Date Available	gem.date.available	O/ **W3CDTF**
Size	dc.format.extent	SS	Extent	gem.format.extent	O
Format	DSpace defined as dc.format.mimetype	SS	Medium	gem.format.medium	M/ **IMT**
URI	DSpace defined as dc.identifier.uri	SS	Identifier	gem.identifier	M/ **URI**
IMS Content Package	DSpace defined as dc.relation.uri	M, NR			
Learning Object Description	DSpace defined as dc.description.uri	M, NR (IMS Content Packages)			
			Age	gem.audeince.age	OR
			Beneficiary	gem.audience.beneficiary	AR/ **GEM-BEN**
			Mediator	gem.audience.mediator	**AR**/ **GEM-LEVEL**
			Spatial	gem.coverage.spatial	OR/ **DCMI Point**
			Temporal	gem.coverage.temporal	OR/ **DCMI Period**
			Prerequisites	gem.audience.prerequisites	OR
			Cataloging Organization	gem.cataloging.catalogingOrganization	M
			Cataloging Tool	gem.cataloging.catalogingTool	M

			Creator	gem.creator	OR
			Date Created	gem.date.reated	O/ **W3CDTF**
			Date Copyrighted	gem.date.dateCopyrighted	O/ **W3CDTF**
			Date Submitted	gem.date.dateSubmitted	O/ **W3CDTF**
			Date Modified	gem.date.modified	OR/ **W3CDTF**
			Date Placed Online	gem.date.placedOnlin	O/ **W3CDTF**
			Date Record Created	gem.date.recordCreated	M/ **W3CDTF**
			Date Valid	gem.date.valid	O/ **DCMI Period**
			Essential Resources	gem.resources	OR
			Bibliographic Citation	gem.identifier.bibliographicCitation	OR
			Public ID	gem.identifier.publicID	OR
			SID	gem.identifier.sid	M
			SDN	gem.identifier.sdn	C
			Conforms TO	gem.relation.conformsTO	OR
			Bibliographic Information	gem.hasBibliographicInfoIn	
			Other Format	gem.relation.hasFormat	OR
			Has Part	gem.relation.hasPart	OR
			Has Version	gem.relation.hasVersion	OR
			Child Of	gem.relation.isChildOf	OR
			Content Rating	gem.relation.isContentRatingFor	OR
			Date	gem.relation.isDateFor	OR
			Derived From	gem.relation..isDerivedForm	OR
			Format Of	gem.relation.isFormatOf	OR
			Order Information	gem.relation.isOrderInfoFor	OR
			Overview	gem.relation.isOverviewOf	OR
			Parent	gem.relation.isParentOf	OR
			Is Part Of	gem.relation.isPartOf	OR
			Peer Review	gem.relation.isPeerReview	OR
			Referenced By	gem.relation.isReferencedBy	OR
			Replaced By	gem.relation.isReplacedBy	OR
			Required By	gem.relation.isRequiredBy	OR
			Revision History	gem.relation.isRevisionHistoryFor	OR
			Sibling	gem.relation.isSiblingOf	OR
			Resource Selection Criteria	gem.relationi.sSiteCriteria	OR
			Sponsored By	gem.relation.isSponsoredBy	OR
			Is Version Of	gem.relation.isVersionOf	OR
			References	gem.relation.references	OR
			Replaces	gem.relation.replaces	OR
			Requires	gem.relation.requires	OR
			Price Code	gem.rights.priceCode	M/ **GEMpriceCode**

			Source	gem.source	

2. Comparison of metadata elements used in THECB LOR and Edna (Education Network Australia)

Mandatory (M) Mandatory if applicable (MA**)** Strongly recommended (R**)** Optional (O)
Mystem-supplied (SS) Repeatable (R) Not repeatable (NR) Conditional (C)

THECB LOR Metadata Element Set			**AGLS (Australian Government Locator Service) Metadata Element Set**		
Label	**Source**	**Note/ Value**	**Label**	**Source**	**Note / Value**
Title	dc.title	M, NR	Title	agls.title	M
Other Title	dc.title.alternative	MA, R	Alternative	agls.title.aternative	MA
Course Structure	dc.relation.isPartOf	MA, R	Is Part Of	agls.relation.isPartOf	O
Discipline and Subdiscipline	lom.classification.taxonPath.taxon	M, R		agls.	
Subjects	dc.subject	M, R/ locally developed	Subject	agls.subject	C
Summary	dc.description.abstract	MA, NR	Description	agls.description	O
Learning Object's Content	dc.description.tableOfConents	O, NR	Description	agls.description	O
Language	dc.language	MA, NR	Lauguage	agls.language	O/RFC 3066
Intended Educational Audience	dc.audience.educationLevel	M, NR	Audience	agls.audience	O
Learning Object Type	dc.type	M, NR/	Type	agls.type	O/ **DCMIType**
Instructional Method	dc.instructionalMethod	M, R		agls.	
Interactivity Type	lom.educational.interactivityType	M, R		agls.	
Interactivity Level	lom.educational.interactivityLevel	M, NR		agls.	
Typical Learning Time	lom.educational.typcialLearningTime	M, NR		agls.	
Difficulty Level	lom.educational.difficulty	M, NR		agls.	
Technical Requirement	lom.technical.requirement	O, R		agls.	
Media Format	dc.format	O, NR	Format	agls.format	O/ MIME
Authors	DSpace defined as dc.contributor.author	MA, R	Creator	agls..creator	M
Author's Affiliation	v dc.contributor.affiliation	O, R		agls.	
Other Contributors	DSpace defined as dc.contributor.other	O, R	Contributor	agls.contributor	O
Date Published	dc.date.dateAccepted	MA, NR/ Mon. YYYY	Date	agls.date	M/ [W3CDTF], YYYY-MM-DD
Publisher	dc.publisher	O, R	Publisher	agls.publisher	C
Creation and	dc.provenance	O, R		agls.	

Ownership Information					
Rights	dc.rights	M	Rights Management	agls.rights	O
Access and Use Rights	dc.rights.accessRights	MA, NR		agls.	
Access and Use License	dc.rights.license	O, NR		agls.	
Rights Holder	dc.rights.rightsHolder	MA, NR		agls.	
Individual Cataloger	gem.cataloging.individualCataloger	M, NR		agls.	
Domain Cataloger	Locally defined as gem.cataloging.individualCatalogerDomain	M, NR		agls.	
Date Issued	DSpace defined as dc.date.dateIssued	SS	Issued	agls.date.issued	MA/ [W3CDTF], YYYY-MM-DD
Date Accessioned	DSpace defined as dc.date.dateAccessioned	SS		agls.	
Date Available	DSpace defined as dc.date.dateAvailable	SS		agls.	
Size	dc.format.extent	SS	Extent	agls.format.extent	O
Format	DSpace defined as dc.format.mimetype	SS	Format	agls.format.medium	O
URI	DSpace defined as dc.identifier.uri	SS	Resource Identifier	agls.identifier	C/ URI, URL,DOI,ISBN
IMS Content Package	DSpace defined as dc.relation.uri	M, NR		agls.	
Learning Object Description	DSpace defined as dc.description.uri	M, NR		agls.	
			Created	agls.date.created	MA/ [W3CDTF], YYYY-MM-DD
			Modified	agls.date.modified	MA/ [W3CDTF], YYYY-MM-DD
			Valid	agls.date.valid	MA/ [W3CDTF], YYYY-MM-DD
			Availability (How the resource can be obtained or contact information for obtaining the resource.)	agls.availablility	CO/ M for offiline resources
			Function (The business function of the organisation to which the resource relates.)	agls.function	CO/
			Coverage	agls.coverage	O

			Jurisdiction	agls.coverage.jurisdiction	O
			Spatial	agls.coverage.spatial	O
			Temporal	agls.coverage.temporal	O
			Postcode	agls.coverage.postcode	O
			Mandate (A specific warrant which requires the resource to be created or provided)	agls.mandate	O
			Act	agls.mandate.act	O
			Regulation	agls.mandate.regulation	O
			Case Law	agls.mandate.case	O
			Relation	agls.relation	O
			IS Version Of	agls.relation.isVersionOf	O
			Has Version	agls.relation.hasVersion	O
			Is Replaced By	agls.relation.isReplacedBy	O
			Replaces	agls.relation.replaces	O
			Is Required By	agls.relation.isRequiredBy	O
			Requires	agls.relation.requiredBy	O
			Has Part	agls.relation.hasPart	O
			Is Referenced By	agls.relation.isReferencedBy	O
			References	agls.relation.references	O
			Is Format Of	agls.relation.isFormatOf	O
			Has Format	agls.relation.hasFormat	O
			Is Basis For	agls.isBasisFor	O
			Is Based On	agls.isBasedOn	O
			Source (A reference to a resource from which the present resource is derived.)	agls.source	O
			Category (The generic type of the resource being described.)	agls.type.category	O/ either service, document, or agency
			Aggregation Level	agls.type.aggregationLevel	O
			Document Type	agls.type.documentType	O
			Service Type	agls.type.serviceType	O

3. Comparison of metadata elements used in THECB LOR and ARIADNE (European Knowledge Pool System)

Mandatory (M) Mandatory if applicable (MA**)** Strongly recommended (R**)** Optional (O)
Mystem-supplied (SS) Repeatable (R) Not repeatable (NR) Conditional (C)

THECB LOR			ARIADNE		
Label	**Source**	**Note/ Value**	**Label**	**Source**	**Note / Value**
Title	dc.title	M, NR	Title	Lom.general.Title	
Other Title	dc.title.alternative	MA, R			
Course Structure	dc.relation.isPartOf	MA, R			
Discipline and Subdiscipline	lom.classification.taxonPath.taxon	M, R	Main Discipline Sub Discipline	lom.classification.taxonPath.taxon lom.classification.taxonPath.taxon	
Subjects	dc.subject	M, R/ locally developed	main concept concept synonyms other Important concepts	lom.classification.taxonPath.taxon	
Summary	dc.description.abstract	MA, NR	Description	lom.general.Description	
Learning Object's Content	dc.description.tableOfConents	O, NR	Description	lom.general.Description	
Language	dc.language	MA, NR	Language	lom.general.Language	
Intended Educational Audience	dc.audience.educationLevel	M, NR	User Type	lom.educational.IntendedEndUserRole	
Learning Object Type	dc.type	M, NR/	Document Format	lom.educational.learningResourceType	
Instructional Method	dc.instructionalMethod	M, R			
Interactivity Type	lom.educational.interactivityType	M, R	Document Type	lom.educational.interactivityType	
Interactivity Level	lom.educational.interactivityLevel	M, NR	Interactivity Level	om.educational.interactivityLevel	
Typical Learning Time	lom.educational.typcialLearningTime	M, NR	Pedagogical Duration	lom.educational.typcialLearningTime	
Difficulty Level	lom.educational.difficulty	M, NR/	Difficulty Level	lom.educational.difficulty	
Technical Requirement	lom.technical.requirement	O, R	Operating System OS Version	lom.technical.requirement.OrComposite.Type lom.technical.requirement.OrComposite.name	
Media Format	dc.format	O, NR	Media Types	lom.technical.format	MIME
Authors	DSpace defined as dc.contributor.author	MA, R	Authors	lom.general.Contribute.Role	
Author's Affiliation	v dc.contributor.affiliation	O, R			
Other Contributors	DSpace defined as dc.contributor.other	O, R			
Date Published	dc.date.dateAccepted	MA, NR	Date	lom.Lifecycle.date	
Publisher	dc.publisher	O, R			
Creation and Ownership	dc.provenance	O, R			

Information					
Rights	dc.rights	M	Usage Remarks	lom.rights.description	
Access and Use Rights	dc.rights.accessRights	MA, NR	Usage Rights	lom.rights.cost	
Access and Use License	dc.rights.license	O, NR	Restrictions	lom.rights.CopyrightsAndOther Restrictions	
Rights Holder	dc.rights.rightsHolder	MA, NR			
Individual Cataloger	gem.cataloging.individualCataloger	M, NR			
Domain Cataloger	Locally defined as gem.cataloging.individualCatalogerDomain	M, NR			
Date Issued	DSpace defined as dc.date.dateIssued	SS			
Date Accessioned	DSpace defined as dc.date.dateAccessioned	SS			
Date Available	DSpace defined as dc.date.dateAvailable	SS			
Size	dc.format.extent	SS	Required Disk Space	lom.technical.Format.Size	
Format	DSpace defined as dc.format.mimetype	SS			
URI	DSpace defined as dc.identifier.uri	SS	Identifier	lom.general.Identifier.Catolog	ARIADNE catalog
IMS Content Package	DSpace defined as dc.relation.uri	M, NR			
Learning Object Description	DSpace defined as dc.description.uri	M, NR (IMS Content Packages)			
			Granularity	lom.general.AggregationLevel	
			Header Author	lom.Meta-Metadata.Contribute.Role	
			Validator	lom.Meta-Metadata.Contribute.Role	
			Header Creation Date	lom.Metadata.Date	
			Validation Date	lom.Metadata.Date	
			Last Modified Date		
			Language	lom.Metadata.Language	
			Installation Notes	lom.technical.installationRemarks	
			Other Constraints	llm.technical.otherPlatform	
			Semantic Density	lom.educational.SemanticDensity	
			Source	lom.relation.Kind.isBasedOn	
			Version Information	lom.relation.kind..isVersionOf	
			Annotations	lom.annotation.	
			Language/Language of each Annotation	lom.annotation	

			Annotator	lom.annotation.entity	
			Creation date	lom.annotation.date	
			Annotation	lom.annotation.description	
			Science Type	lom.classification.purpose	
			Main Concept	lom.classification.purpose	
			Concept Synonoyms	lom.classification.purpose	
			Other Important Concepts	lom.classification.purpose	
			Didactical Context	lom.classification.purpose	

4. Comparison of metadata elements used in THECB LOR and CAREO (Campus Alberta Repository of Educational Objects, which used CanCore metadata schema)

Mandatory (M) Mandatory if applicable (MA**)** Strongly recommended (R**)** Optional (O)
Mystem-supplied (SS) Repeatable (R) Not repeatable (NR) Conditional (C)

THECB LOR			**CanCore (version 1.9)**		
Label	**Source**	**Note/ Value**	**Lable**	**Source**	**Note / Value**
Title	dc.title	M, NR	Title	lom.general.Title	
Other Title	dc.title.alternative	MA, R			
Course Structure	dc.relation.isPartOf	MA, R	Is part Of	lom.relation.kind	
Discipline and Subdiscipline	lom.classification.taxonPath.taxon	M, R	Taxon	lom.classification.taxonPath.taxon	
Subjects	dc.subject	M, R/ locally developed	Key Word	lom.general.keyword	
Summary	dc.description.abstract	MA, NR	Description	lom.general.Description	
Learning Object's Content	dc.description.tableOfConents	O, NR			
Language	dc.language	MA, NR	Language	lom.general.Language	
Intended Educational Audience	dc.audience.educationLevel	M, NR	Intended End User Role	lom.educational.IntendedEndUserRole	Teacher, Author, Learner, Manager
Learning Object Type	dc.type	M, NR/	Learning Resource Type	lom.educational.learningResourceType	Exercise, Simulation, Questionnaire, Diagram, Figure, Graph, Index, Slide, Table, Narrative Text, Exam, Problem statement, Self assessment, Lecture
Instructional Method	dc.instructionalMethod	M, R			
Interactivity Type	lom.educational.interactivityType	M, R			

Interactivity Level	lom.educational.interactivityLevel	M, NR,	Interactivity Level	lom.educational.interactivityLevel	
Typical Learning Time	lom.educational.typcialLearningTime	M, NR	Typical Learning Time	lom.educational.typcialLearningTime	
Difficulty Level	lom.educational.difficulty	M, NR			
Technical Requirement	lom.technical.requirement	O, R	Other Platform Requirements	lom.technical.otherPlatformRequirements	
Media Format	dc.format	O, NR	Format	lom.technical.format	MIME
Authors	DSpace defined as dc.contributor.author	MA, R	Authors	lom.general.Contribute.Role	
Author's Affiliation	v dc.contributor.affiliation	O, R			
Other Contributors	DSpace defined as dc.contributor.other	O, R	(Either one from the values)	lom.general.Contribute.Role	Unknown Initiator Terminator Validator Editor Graphical designer Technical implementer Content provider Technical validator Educational validator Script writer Instructional designer Subject matter expert
Date Published	dc.date.dateAccepted	MA, NR	Date	lom.Lifecycle.date	
Publisher	dc.publisher	O, R	Publisher	lom.general.Contribute.Role	
Creation and Ownership Information	dc.provenance	O, R			
Rights	dc.rights	M	Usage Remarks	lom.rights.description	
Access and Use Rights	dc.rights.accessRights	MA, NR	Cost	lom.rights.cost	
Access and Use License	dc.rights.license	O, NR	Copyright and Other Restrications	lom.rights.CoprightsAndOtherRestrictions	
Rights Holder	dc.rights.rightsHolder	MA, NR			
Individual Cataloger	gem.cataloging.individualCataloger	M, NR			

Domain Cataloger	Locally defined as gem.cataloging.individualCatalogerDomain	M, NR			
Date Issued	DSpace defined as dc.date.dateIssued	SS			
Date Accessioned	DSpace defined as dc.date.dateAccessioned	SS			
Date Available	DSpace defined as dc.date.dateAvailable	SS			
Size	dc.format.extent	SS	Size	lom.technical.size	
Format	DSpace defined as dc.format.mimetype	SS			
URI	DSpace defined as dc.identifier.uri	SS	Identifier	lom.general.Identifier	
IMS Content Package	DSpace defined as dc.relation.uri	M, NR	URI	lom.relation.resource.identifer	
Learning Object Description	DSpace defined as dc.description.uri	M, NR (IMS Content Packages)			
			Aggregation Level	lom.general.AggregationLevel	
			Context	lom.educational.context	
			Typical Age Range	lom.educational.typicalAgeRange	
			Language (Educational)	lom.educational.language	
			Location	lom.technical.location	
			Duration	lom.technical.duration	
			Version	lom.lifecycle.status	
			(either from the values)	lom.relation.kind	Is version of Has version Is required by Requires Has part Is referenced by References Is format of Has format Is based on Is basis for
			(Either one of the values)	lom.relation.resource.identifier.catalog	URI URL URN PURL DOI ISBN ISSN

			Purpose	lom.classification.purpose	
			Source	lom.classification.Taxonpath.source	
			Keyword (Classification)	lom.classification.keyword	
			Metametadata	lom..metametadata.identifier	
				lom.metametadata.catalogentry	
				lom.metametadata.contribute	
				lom.metametadata.metadatascheme	
				lom.metametadata.language	
				lom.metametadata.	
			Annotation	lom.annotation.entity	
				lom.annotation.date	
				lom.annotation.description	

5. Comparison of metadata elements used in THECB LOR and iLumina

Mandatory (M) Mandatory if applicable (MA**)** Strongly recommended (R**)** Optional (O)
Mystem-supplied (SS) Repeatable (R) Not repeatable (NR) Conditional (C)

THECB LOR			**iLumina** (Heath, McArthur, McClelland, and Vetter, 2005)		
Label	**Source**	**Note/ Value**	**Lable**	**Source**	**Note / Value**
Title	dc.title	M, NR	Title	lom.general.Title	
Other Title	dc.title.alternative	MA, R			
Course Structure	dc.relation.isPartOf	MA, R	Is part Of	lom.relation.kind	
Discipline and Subdiscipline	lom.classification.taxonPath.taxon	M, R	Taxon	lom.classification.taxonPath.taxon	
Subjects	dc.subject	M, R/ locally developed	Key Word	lom.general.keyword	
Summary	dc.description.abstract	MA, NR	Description	lom.general.Description	
Learning Object's Content	dc.description.tableOfConents	O, NR			
Language	dc.language	MA, NR	Language	lom.general.Language	
Intended Educational Audience	dc.audience.educationLevel	M, NR	Intended End User Role	lom.educational.IntendedEndUserRole	
Learning Object Type	dc.type	M, NR/	Learning Resource Type	lom.educational.learningResourceType	Course, Lesson, Book, Presentation, Example, Demonstration, Simulation, Lab, Exercise, Assessment, Project, Dataset, Syllabus, Lesson Plan,

					Teacher Tool, Learner Tool, Manager Tool
Instructional Method	dc.instructionalMethod	M, R			
Interactivity Type	lom.educational.interactivityType	M, R			
Interactivity Level	lom.educational.interactivityLevel	M, NR, Very High	Interactivity Level	lom.educational.interactivityLevel	
Typical Learning Time	lom.educational.typcialLearningTime	M, NR			
Difficulty Level	lom.educational.difficulty	M, NR			
Technical Requirement	lom.technical.requirement	O, R	Technical Requirement	lom.technical.requirement	
			Other Platform Requirements	lom.technical.otherPlatformRequrements	
Media Format	dc.format	O, NR / Text, Video, Audio, Multimedia	Format	lom.technical.format	Course, Lesson, Book, Presentation, Example, Demonstration, Simulation, Lab, Exercise, Assessment, Project, Dataset, Syllabus, Lesson Plan, Teacher Tool, Learner Tool, Manager Tool
Authors	DSpace defined as dc.contributor.author	MA, R	Authors	lom.general.Contribute.Role	
Author's Affiliation	v dc.contributor.affiliation	O, R	Contributors		
Other Contributors	DSpace defined as dc.contributor.other	O, R		lom.general.Contribute.Role	
Date Published	dc.date.dateAccepted	MA, NR	Date	lom.Lifecycle.date	
Publisher	dc.publisher	O, R	Publisher	lom.general.Contribute.Role	
Creation and Ownership Information	dc.provenance	O, R			
Rights	dc.rights	M	Usage Remarks	lom.rights.description	
Access and Use Rights	dc.rights.accessRights	MA, NR	Cost	lom.rights.cost	
Access and Use License	dc.rights.license	O, NR	Copyright and Other Restrications	lom.rights.CopyrightsAndOtherRestrictions	
Rights Holder	dc.rights.rightsHolder	MA, NR			

Individual Cataloger	gem.cataloging.individualCataloger	M, NR			
Domain Cataloger	Locally defined as gem.cataloging.individualCatalogerDomain	M, NR			
Date Issued	DSpace defined as dc.date.dateIssued	SS			
Date Accessioned	DSpace defined as dc.date.dateAccessioned	SS			
Date Available	DSpace defined as dc.date.dateAvailable	SS			
Size	dc.format.extent	SS	Size	lom.technical.size	
Format	DSpace defined as dc.format.mimetype	SS			
URI	DSpace defined as dc.identifier.uri	SS			
IMS Content Package	DSpace defined as dc.relation.uri	M, NR	URI	lom.relation.resource.identifer	
Learning Object Description	DSpace defined as dc.description.uri	M, NR (IMS Content Packages)			
			Structure	lom.general.structure	Collection, Individual Learning Resource
			Statues	lom.lifecycle.statues	Submitted, In Review, Accepted, Unavailable
			Context	lom.educational.context	
			Location	lom.technical.location	
			Is Based On	lom.relation.kind	
			Metametadata	lom.metametadata.catalogentry	
			Taxon Source	lom.classification.taxonPath.source	

6. *Comparison of metadata elements used in THECB LOR and DLESE (The Digital Library for Earth System Education)*

Mandatory (M) Mandatory if applicable (MA**)** Strongly recommended (R**)** Optional (O)
Mystem-supplied (SS) Repeatable (R) Not repeatable (NR) Conditional (C)

THECB LOR	**DlESE Metadata (base on AND v.0.6.50)**

Label	Source	Note/ Value	Lable	Source	Note / Value
Title	dc.title	M, NR	Title	and.general.title	M
Other Title	dc.title.alternative	MA, R			
Course Structure	dc.relation.isPartOf	MA, R			
Discipline and Subdiscipline	lom.classification.taxonPath.taxon	M, R			
Subjects	dc.subject	M, R/ locally developed	Subject	and.general.subjects	M
Summary	dc.description.abstract	MA, NR	Description	and.general.description	M
Learning Object's Content	dc.description.tableOfConents	O, NR			
Language	dc.language	MA, NR	Language of the resource	and.general.language	M
Intended Educational Audience	dc.audience.educationLevel	M, NR	Audience	and.educational.audiences	
Learning Object Type	dc.type	M, NR/ DCMIType	Resource type	and.educational.resourceTypes	M
Instructional Method	dc.instructionalMethod	M, R			
Interactivity Type	lom.educational.interactivityType	M, R	Interactivity type	and.educational.InteractivityType	
Interactivity Level	lom.educational.interactivityLevel	M, NR, Very High	Interactivity level	and.educational.interactivityLevel	
Typical Learning Time	lom.educational.typcialLearningTime	M, NR	Typical learning time	and.educational.audiences.audience.typicalUseTime	
Difficulty Level	lom.educational.difficulty	M, NR			
Technical Requirement	lom.technical.requirement	O, R	Technical Requirements	and.technical.online.reuirement	M
Media Format	dc.format	O, NR / Text, Video, Audio, Multimedia			
Authors	DSpace defined as dc.contributor.author	MA, R	Resource Creator	and.lifecycle.contributors	M
Author's Affiliation	v dc.contributor.affiliation	O, R			
Other Contributors	DSpace defined as dc.contributor.other	O, R			
Date Published	dc.date.dateAccepted	MA, NR	Creation date	and.metaMetadata.datein.reated	
Publisher	dc.publisher	O, R			
Creation and Ownership Information	dc.provenance	O, R			
Rights	dc.rights	M			
Access and Use Rights	dc.rights.accessRights	MA, NR	Cost	and.rights.cost	M
Access and Use License	dc.rights.license	O, NR	Copyright	and.riights.description	M
Rights Holder	dc.rights.rightsHolder	MA, NR			
Individual Cataloger	gem.cataloging.individualCata	M, NR	Resource Cataloger	and.metaMetadata.contributors.c	M

	loger			ontributor.role	
Domain Cataloger	Locally defined as gem.cataloging.individualCatalogerDomain	M, NR	Resource Cataloger	and.metaMetadata.contributors.contributor.role	M
Date Issued	DSpace defined as dc.date.dateIssued	SS			
Date Accessioned	DSpace defined as dc.date.dateAccessioned	SS			
Date Available	DSpace defined as dc.date.dateAvailable	SS			
Size	dc.format.extent	SS	Size of the resoource	and.technical.online.size	O
Format	DSpace defined as dc.format.mimetype	SS			
URI	DSpace defined as dc.identifier.uri	SS	URL or access information	and.technical.offline.accessInformation	M
IMS Content Package	DSpace defined as dc.relation.uri	M, NR	Relationships between resources	and.relation.urlEntry	O
Learning Object Description	DSpace defined as dc.description.uri	M, NR (IMS Content Packages)	Relationships between resources	and.relation.urlEntry	O
			Language of the metadata	and.metaMetadata.language	O
			Copyrights of the metadata	and.metaMetadata.copyright	O
			Terms of use	and.metaMetadata.termsOfUse	O
			Metadata framework	and.metaMetadata.scheme	O
			Accession date	and.metaMeatadata.dateInfo.accessioned	O
			Record status	and.metaMetadata.statusOf.status	O
			Coverage	and.geospatialCoverages and.temporalCoverages	O
			Science standards	and.educational.contentStards.contentStandard	O
			Geography standards	and.educational.contentStards.contentStandard	O
			Keywords	and.general.keywords	O
			Additional technical information	and.technical.online.otherRequirements	O
			Duration of the resource	and.technical.online.duration	O
			Whom is the resource used by	and.educational.audiences.audience.gradeRange	O
			Whom does the resource benefit	and.educational.audiences.audience.beneficiary	O
			Instructional goal	and.educational.audiences.audience.instructionalGoal	O

7. Comparison of metadata elements used in THECB LOR and EducaNext

Mandatory (M) Mandatory if applicable (MA**)** Strongly recommended (R**)** Optional (O)
Mystem-supplied (SS) Repeatable (R) Not repeatable (NR) Conditional (C)

THECB LOR			**Educanext (base on LOM and DC)**		
Label	**Source**	**Note/ Value**	**Lable**	**Source**	**Note / Value**
Title	dc.title	M, NR	Title	Educanext.general	M
Other Title	dc.title.alternative	MA, R			
Course Structure	dc.relation.isPartOf	MA, R			
Discipline and Subdiscipline	lom.classification.taxonPath.taxon	M, R			
Subjects	dc.subject	M, R/ locally developed	Classification	Educanext.general.classification	M/ values based on Dutch Basic classification system
Summary	dc.description.abstract	MA, NR	Description	Educanext.general	M
Learning Object's Content	dc.description.tableOfConents	O, NR			
Language	dc.language	MA, NR	Learning Resource Language	Educanext.general	M
Intended Educational Audience	dc.audience.educationLevel	M, NR			
Learning Object Type	dc.type	M, NR/ DCMIType	**Learning Resource Type:** Educational Material Type Educational Activity	Educanext.general	M
Instructional Method	dc.instructionalMethod	M, R	Method of Instruction	Educanext.educationalInformation	O
Interactivity Type	lom.educational.interactivityType	M, R			
Interactivity Level	lom.educational.interactivityLevel	M, NR, Very High			
Typical Learning Time	lom.educational.typcialLearningTime	M, NR	Typical Learning Time	Educanext.general	O
Difficulty Level	lom.educational.difficulty	M, NR			

Technical Requirement	lom.technical.requirement	O, R	**Technical Requiremets:** Type of Technology Name of Technology Minimum Maximum	Educanext.technicalInformation.technicalRequirements	O/
Media Format	dc.format	O, NR / Text, Video, Audio, Multimedia	Format	Educanext.technicalInfromation	O
Authors	DSpace defined as dc.contributor.author	MA, R	Author	Educanext.general	M
Author's Affiliation	v dc.contributor.affiliation	O, R			
Other Contributors	DSpace defined as dc.contributor.other	O, R	Contributors	Educanext.general	M
Date Published	dc.date.dateAccepted	MA, NR			
Publisher	dc.publisher	O, R			
Creation and Ownership Information	dc.provenance	O, R			
Rights	dc.rights	M			
Access and Use Rights	dc.rights.accessRights	MA, NR			
Access and Use License	dc.rights.license	O, NR	UNIVERSAL license Agreement/ UNIVERSAL Restricted License Agreement		On the website
Rights Holder	dc.rights.rightsHolder	MA, NR			
Individual Cataloger	gem.cataloging.individualCataloger	M, NR			
Domain Cataloger	Locally defined as gem.cataloging.individualCatalogerDomain	M, NR			
Date Issued	DSpace defined as dc.date.dateIssued	SS			
Date Accessioned	DSpace defined as dc.date.dateAccessioned	SS			
Date Available	DSpace defined as dc.date.dateAvailable	SS			
Size	dc.format.extent	SS	Size	Educanext.technicalInformation	O
Format	DSpace defined as dc.format.mimetype	SS			
URI	DSpace defined as	SS			

	dc.identifier.uri				
IMS Content Package	DSpace defined as dc.relation.uri	M, NR			
Learning Object Description	DSpace defined as dc.description.uri	M, NR (IMS Content Packages)			
			Description Lauguage	Educanext.general	M
			Default Classification System	Educanext.general	M/ Dutch Basic
			Location	Educanext.general	M
			Version	Educanext.technicalInformation	O
			Educational Objectives	Educanext.educationalInformation	O
			Location of Additional Information	Educanext.educationalInformation	O
			Curriculum	Educanext.educationalInformation	O
			Prerequisites		O
			ECTS cREDITS	Educanext.educationalInformation	O

8. Comparison of metadata elements used in THECB LOR and Intute

Mandatory (M) Mandatory if applicable (MA**)** Strongly recommended (R**)** Optional (O)
Mystem-supplied (SS) Repeatable (R) Not repeatable (NR) Conditional (C)

THECB LOR			**Intute (follow RDN guidelines which are based on DC, RLLOMAP, AACR2)**		
Label	**Source**	**Note/ Value**	**Lable**	**Source**	**Note / Value**
Title	dc.title	M, NR	Title	rdn	M
Other Title	dc.title.alternative	MA, R	Alternative titles	rdn	M
Course Structure	dc.relation.isPartOf	MA, R	Is Part Of	rdn	
Discipline and Subdiscipline	lom.classification.taxonPath.taxon	M, R			
Subjects	dc.subject	M, R/ locally developed	Keywords (controlled) Keywords(uncontrolled)		M
Summary	dc.description.abstract	MA, NR	Description	rdn	O
Learning Object's Content	dc.description.tableOfConents	O, NR		rdn	M
Language	dc.language	MA, NR	Lauguage	rdn	M
Intended Educational Audience	dc.audience.educationLevel	M, NR	Audience	rdn	O
Learning Object Type	dc.type	M, NR/	Resource types	rdn	M/ Intute

					resource types
Instructional Method	dc.instructionalMethod	M, R			
Interactivity Type	lom.educational.interactivityType	M, R			
Interactivity Level	lom.educational.interactivityLevel	M, NR, Very High			
Typical Learning Time	lom.educational.typcialLearningTime	M, NR			
Difficulty Level	lom.educational.difficulty	M, NR			
Technical Requirement	lom.technical.requirement	O, R	Technical requirements	rdn	O
Media Format	dc.format	O, NR			O
Authors	DSpace defined as dc.contributor.author	MA, R	Resource creator	rdn	M
Author's Affiliation	v dc.contributor.affiliation	O, R			
Other Contributors	DSpace defined as dc.contributor.other	O, R	Resource publisher	rdn	M
Date Published	dc.date.dateAccepted	MA, NR	Date resource created	rdn	O/ YYYY-MM-DD
Publisher	dc.publisher	O, R			
Creation and Ownership Information	dc.provenance	O, R			
Rights	dc.rights	M	Rights/copyright statement	rdn	O
Access and Use Rights	dc.rights.accessRights	MA, NR			
Access and Use License	dc.rights.license	O, NR			
Rights Holder	dc.rights.rightsHolder	MA, NR			
Individual Cataloger	gem.cataloging.individualCataloger	M, NR	Record creator ID	rdn	O
Domain Cataloger	Locally defined as gem.cataloging.individualCatalogerDomain	M, NR			
Date Issued	DSpace defined as dc.date.dateIssued	SS			
Date Accessioned	DSpace defined as dc.date.dateAccessioned	SS			
Date Available	DSpace defined as dc.date.dateAvailable	SS			
Size	dc.format.extent	SS			
Format	DSpace defined as dc.format.mimetype	SS	Format	rdn	
URI	DSpace defined as dc.identifier.uri	SS	RUL	rdn	M
IMS Content Package	DSpace defined as	M, NR			

	dc.relation.uri				
Learning Object Description	DSpace defined as dc.description.uri	M, NR (IMS Content Packages)			
			Handle	rdn	M, SS
			Subject group	rdn	M, SS
			Subgateways	rdn	M
			Classifications	rdn	M
			County of origin	rdn	M
			Administrator name	rdn	O
			Administrator email	rdn	M
			ISBN	rdn	O
			ISSN	rdn	O
			Period	rdn	O
			Geographic name	rdn	O
			Latitude	rdn	O
			Longitude	rdn	O
			Educational level	rdn	O/ 12 UK Educational Levels (UKEL)
			Relationships	rdn	O
			Flag	Locally defined	O
			Record source	rdn	O
			Comments	rdn	O
			Status	rdn	O
			Date record created	rdn	O
			Date for review	rdn	O
			Relationships: Is format of Has format Has part References Is referenced by Is version of Has version Replaces Is replaced by	rdn	O/ Limited to 3 relation fields if possible

9. Comparison of metadata elements used in THECB LOR and Jorum

Mandatory (M) Mandatory if applicable (MA**)** Strongly recommended (R**)** Optional (O)
Mystem-supplied (SS) Repeatable (R) Not repeatable (NR) Automated partially or fully (A)

THECB LOR	**Jorum (based on UK LOM)**

Label	Source	Note/ Value	Lable	Source	Note / Value
Title	dc.title	M, NR	Title	lom.general.title	A
Other Title	dc.title.alternative	MA, R			
Course Structure	dc.relation.isPartOf	MA, R			
Discipline and Subdiscipline	lom.classification.taxonPath.taxon	M, R	Discipline	lom.classification.purpose	
Subjects	dc.subject	M, R/ locally developed	Keyword	lom.general.keyword	
Summary	dc.description.abstract	MA, NR	Dscription	lom.general.description	
Learning Object's Content	dc.description.tableOfConents	O, NR			
Language	dc.language	MA, NR	Lauguage	lom.general.language	A
Intended Educational Audience	dc.audience.educationLevel	M, NR			
Learning Object Type	dc.type	M, NR/	Learning Resource Type	lom.educational.LearningResourceType	
Instructional Method	dc.instructionalMethod	M, R			
Interactivity Type	lom.educational.interactivityType	M, R	Interactivity Type	lom.educational.interactivityType	
Interactivity Level	lom.educational.interactivityLevel	M, NR, Very High	Interactivity Level	lom.educational.interactivityLevel	
Typical Learning Time	lom.educational.typcialLearningTime	M, NR			
Difficulty Level	lom.educational.difficulty	M, NR	Difficulty	lom.educational.difficulty	
Technical Requirement	lom.technical.requirement	O, R	Technical Requirement	lom.technical.requirement	
Media Format	dc.format	O, NR			
Authors	DSpace defined as dc.contributor.author	MA, R	Author	lom.lifecycle.contribute.role	A
Author's Affiliation	v dc.contributor.affiliation	O, R			
Other Contributors	DSpace defined as dc.contributor.other	O, R			
Date Published	dc.date.dateAccepted	MA, NR	Date	lom.lifecycle.contribute.date	A
Publisher	dc.publisher	O, R			
Creation and Ownership Information	dc.provenance	O, R			
Rights	dc.rights	M	Rights description	lom.rights.copyrightAndOtherRestrictions	
Access and Use Rights	dc.rights.accessRights	MA, NR			
Access and Use License	dc.rights.license	O, NR	Copyrith and other Restrictions	lom.rights.description	
Rights Holder	dc.rights.rightsHolder	MA, NR			

Individual Cataloger	gem.cataloging.individualCataloger	M, NR			
Domain Cataloger	Locally defined as gem.cataloging.individualCatalogerDomain	M, NR			
Date Issued	DSpace defined as dc.date.dateIssued	SS			
Date Accessioned	DSpace defined as dc.date.dateAccessioned	SS			
Date Available	DSpace defined as dc.date.dateAvailable	SS			
Size	dc.format.extent	SS	Size	lom.technical.size	A
Format	DSpace defined as dc.format.mimetype	SS	Format	lom.technical.format	A
URI	DSpace defined as dc.identifier.uri	SS	Identifier	lom.general.indentifier.catalog	A
IMS Content Package	DSpace defined as dc.relation.uri	M, NR			
Learning Object Description	DSpace defined as dc.description.uri	M, NR (IMS Content Packages)			
			Aggregation Level	lom.general.aggregationLevel	
			Vcard	lom.lifecycle.contributor.role	
			Identifier (metaMetadata)	lom.metaMetadata.identifier	
			Creator (metaMetadata)	lom.metaMetadata.contribute.role	A
			BEGIN: vcard (metaMetadata)	lom.metaMetadata.contribute.role	A
			Date (metaMetadata)	lom.metaMetadata.contribute.date	A
			Metadata scheme (metaMetadata)	lom.metaMetadata.metadataSchema	A
			Language (metaMetadata)	lom.metaMetadata.language	
			Location	lom.technical.location	
			Intended End User Role	lom.educational.Intended End User Role	
			Context	lom.educationalContext	
			Typical Age Range	lom.educationalTypical Age Range	
			Description	lom.educationaldescription	

10. Comparison of Metadata Elements used in THECB LOR and NSDL

Mandatory (M) Mandatory if applicable (MA**)** Strongly recommended (R**)** Optional (O)
Mystem-supplied (SS) Repeatable (R) Not repeatable (NR) Automated partially or fully (A)

THECB LOR			**NSDL**		
Label	**Source**	**Note**	**Label**	**Source**	**Note**
Title	dc.title	M, NR	Title	dc.title	
Other Title	dc.title.alternative	MA, R			
Course Structure	dc.relation.isPartOf	MA, R			
Discipline and Subdiscipline	lom.classification.taxonPath.taxon	M, R			
Subjects	dc.subject	M, R	Subject Keywords	dc.subject	
Summary	dc.description.abstract	MA, NR	Description	dc.description	
Learning Object's Content	dc.description.tableOfConents	O, NR			
Language	dc.language	MA, NR	Language	dc.language	
Intended Educational Audience	dc.audience.educationLevel	M, NR	Intended Audience	dc.audience	
Learning Object Type	dc.type	M, NR	Type	dc.type	
Instructional Method	dc.instructionalMethod	M, R			
Interactivity Type	lom.educational.interactivityType	M, R	Interactivity Type	lom.educational.interactivityType	
Interactivity Level	lom.educational.interactivityLevel	M, NR	Interactivity Level	lom.educational.interactivityLevel	
Typical Learning Time	lom.educational.typcialLearningTime	M, NR	Typical Learning Time	lom.educational.typcialLearningTime	
Difficulty Level	lom.educational.difficulty	M, NR	Grade Level	Unknown	
Technical Requirement	lom.technical.requirement	O, R			
Media Format	dc.format	O, NR	Resource Format	dc.format	
Authors	Defined by DSpace as a refinement of dc.contributor: dc.contributor.author	MA, R	Creator	dc.creator	
Author's Affiliation	Defined by DSpace as a refinement of dc.contributor: dc.contributor.affiliation	O, R			
Other Contributors	Defined by DSpace as a refinement of dc.contributor: dc.contributor.other	O, R	Contributor	dc.contributor	
Date Published	dc.date.dateAccepted	MA, NR	Date Published	dc.date	
Publisher	dc.publisher	O, R	Publisher / Resource Provider	dc.publisher	
Creation and Ownership Information	dc.provenance	O, R			

Rights	dc.rights	M			
Access and Use Rights	dc.rights.accessRights	MA, NR	Rights Information	dc.rights	
Access and Use License	dc.rights.license	O, NR			
Rights Holder	dc.rights.rightsHolder	MA, NR			
Individual Cataloger	gem.cataloging.individualCataloger	M, NR			
Domain Cataloger	Locally defined as a refinement of gem.cataloging	M, NR			
Date Issued	Defined by DSpace as a refinement of dc.date: dc.date.dateIssued	SS			
Date Accessioned	Defined by DSpace as a refinement of dc.date: dc.date.dateAccessioned	SS			
Date Available	Defined by DSpace as a refinement of dc.date: dc.date.dateAvailable	SS			
Size	dc.format.extent	SS			
Format	Defined by DSpace as a refinement of dc.format: dc.format.mimetype	SS			
URI	Defined by DSpace as a refinement of dc.identifier: dc.identifier.uri	SS	Identifier	dc.identifier	
IMS Content Package	Defined by DSpace as a refinement of dc.relation: dc.relation.uri	M, NR (IMS Content Packages)	Relation	dc.relation	
Learning Object Description	Defined by DSpace as a refinement of dc.description: dc.description.uri	M, NR (IMS Content Packages)	Collection Information	unknown	
			Source	dc.source	
			Standards	Locally defined as a refinement of dc.relation: dc.relation.standards	
			Coverage	dc.coverage	

11. Comparison of Metadata Elements used in THECB LOR and the Orange Grove

Mandatory (M) Mandatory if applicable (MA**)** Strongly recommended (R**)** Optional (O)
Mystem-supplied (SS) Repeatable (R) Not repeatable (NR) Automated partially or fully (A)

THECB LOR	**Orange Grove**

Label	Source	Note	Label	Source	Note
Title	dc.title	M, NR	Title	lom.general.title	M, NR
Other Title	dc.title.alternative	MA, R			
Course Structure	dc.relation.isPartOf	MA, R			
Discipline and Subdiscipline	lom.classification.taxonPath.taxon	M, R	Taxon Path	lom.classficiation.taxonPath	M, R
Subjects	dc.subject	M, R	Keywords	lom.general.keywords; lom.classification.kewords	M, R
Summary	dc.description.abstract	MA, NR	Description	lom.general.description	M, NR
Learning Object's Content	dc.description.tableOfConents	O, NR			
Language	dc.language	MA, NR	Language	lom.general.language	M, NR
Intended Educational Audience	dc.audience.educationLevel	M, NR	Intended End User Role	lom.educational.intendedEndUserRole	M, R
Learning Object Type	dc.type	M, NR	Learning Resource Type	lom.educational.learningResourceType	R, R
Instructional Method	dc.instructionalMethod	M, R			
Interactivity Type	lom.educational.interactivityType	M, R	Interactivity Type	lom.educational.interactivityType	M, NR
Interactivity Level	lom.educational.interactivityLevel	M, NR	Interactivity Level	lom.educational.interactivityLevel	R, NR
Typical Learning Time	lom.educational.typcialLearningTime	M, NR	Typical Learning Time	lom.educational.typcialLearningTime	M, NR
Difficulty Level	lom.educational.difficulty	M, NR	Difficulty	lom.educational.difficulty	M, NR
Technical Requirement	lom.technical.requirement	O, R	Hardware / Software Requirements	lom.technical.hardware/softwareRequirements	M, R
Media Format	dc.format	O, NR	Format	lom.technical.format	
Authors	Defined by DSpace as a refinement of dc.contributor: dc.contributor.author	MA, R	Owner	lom.lifecyle.contribute.role	M
Author's Affiliation	Defined by DSpace as a refinement of dc.contributor: dc.contributor.affiliation	O, R			
Other Contributors	Defined by DSpace as a refinement of dc.contributor: dc.contributor.other	O, R	Contribute Entity	lom.lifecycle.contribute.entity	
Date Published	dc.date.dateAccepted	MA, NR			
Publisher	dc.publisher	O, R			
Creation and Ownership Information	dc.provenance	O, R			
Rights	dc.rights	M	Rights Description	lom.rights.description	M, R
Access and Use Rights	dc.rights.accessRights	MA, NR	Copyright and Other Restrictions	lom.rights.copyrightAndOtherRestrictions	M, NR
Access and Use License	dc.rights.license	O, NR			

Rights Holder	dc.rights.rightsHolder	MA, NR			
Individual Cataloger	gem.cataloging.individualCataloger	M, NR			
Domain Cataloger	Locally defined as a refinement of gem.cataloging	M, NR			
Date Issued	Defined by DSpace as a refinement of dc.date: dc.date.dateIssued	SS			
Date Accessioned	Defined by DSpace as a refinement of dc.date: dc.date.dateAccessioned	SS			
Date Available	Defined by DSpace as a refinement of dc.date: dc.date.dateAvailable	SS			
Size	dc.format.extent	SS	Size	lom.technical.size	SS
Format	Defined by DSpace as a refinement of dc.format: dc.format.mimetype	SS			
URI	Defined by DSpace as a refinement of dc.identifier: dc.identifier.uri	SS	Identifier	lom.metametadata.identifier	SS
IMS Content Package	Defined by DSpace as a refinement of dc.relation: dc.relation.uri	M, NR (IMS Content Packages)			
Learning Object Description	Defined by DSpace as a refinement of dc.description: dc.description.uri	M, NR (IMS Content Packages)			
			Coverage	lom.general.coverage	M, R
			Version	lom.lifecycle.version	M, NR
			Status	lom.lifecycle.status	M, NR
			Metadata Scheme	lom.metametadata.metadataScheme	SS
			Catalog Entry	lom.metametadata.catalogEntry	SS
			Remote Location	lom.technical.remoteLocation	R, NR
			Duration	lom.technical.duration	M, NR
			Learning Context	lom.educational.learningContext	M, R
			Typical Age Range	lom.educational.typicalAgeRange	M, R
			Use Description	lom.educational.description	R, NR
			Annotation Description	lom.annotation.description	R, NR
			Cost	lom.rights.cost	M, NR
			Purpose	lom.classification.purpose	M, R
			Metadata Language	lom.metametadata.language	SS

12. Comparison of Metadata Elements used in THECB LOR and TLF

Mandatory (M) Mandatory if applicable (MA**)** Strongly recommended (R**)** Optional (O)
Mystem-supplied (SS) Repeatable (R) Not repeatable (NR) Automated partially or fully (A)

THECB LOR			**The Learning Federation**		
Label	**Source**	**Note**	**Label**	**Source**	**Note**
Title	dc.title	M, NR	Title	dc.title	M, NR
Other Title	dc.title.alternative	MA, R			
Course Structure	dc.relation.isPartOf	MA, R			
Discipline and Subdiscipline	lom.classification.taxonPath.taxon	M, R			
Subjects	dc.subject	M, R	Keywords	dc.subject	M, NR
Summary	dc.description.abstract	MA, NR	Description	lom.general.description	M, NR
Learning Object's Content	dc.description.tableOfConents	O, NR			
Language	dc.language	MA, NR	Language	dc.language	M, NR
Intended Educational Audience	dc.audience.educationLevel	M, NR	Audience	dc.audience	M, NR
Learning Object Type	dc.type	M, NR	Learning Resource Type	lom.educational.learningResourceType	M (DCMI Type voc)
Instructional Method	dc.instructionalMethod	M, R			
Interactivity Type	lom.educational.interactivityType	M, R			
Interactivity Level	lom.educational.interactivityLevel	M, NR			
Typical Learning Time	lom.educational.typcialLearningTime	M, NR			
Difficulty Level	lom.educational.difficulty	M, NR			
Technical Requirement	lom.technical.requirement	O, R	Technical Requirement	Lom.technical.requirement	M/ name, type,minimum version, maximum version
Media Format	dc.format	O, NR	Format	dc.format	SS (IMT)
Authors	Defined by DSpace as a refinement of dc.contributor: dc.contributor.author	MA, R	Creator	lom.lifecycle.contribute.role	
Author's Affiliation	Defined by DSpace as a refinement of dc.contributor: dc.contributor.affiliation	O, R			

Other Contributors	Defined by DSpace as a refinement of dc.contributor: dc.contributor.other	O, R	Contribute Entity	lom.lifecycle.contribute.entity	M, NR
Date Published	dc.date.dateAccepted	MA, NR	Date	dc.date	M, NR (cotrolled vocab: W3C-DTF)
Publisher	dc.publisher	O, R			
Creation and Ownership Information	dc.provenance	O, R			
Rights	dc.rights	M			
Access and Use Rights	dc.rights.accessRights	MA, NR			
Access and Use License	dc.rights.license	O, NR			
Rights Holder	dc.rights.rightsHolder	MA, NR			
Individual Cataloger	gem.cataloging.individualCataloger	M, NR			
Domain Cataloger	Locally defined as a refinement of gem.cataloging	M, NR			
Date Issued	Defined by DSpace as a refinement of dc.date: dc.date.dateIssued	SS			
Date Accessioned	Defined by DSpace as a refinement of dc.date: dc.date.dateAccessioned	SS			
Date Available	Defined by DSpace as a refinement of dc.date: dc.date.dateAvailable	SS			
Size	dc.format.extent	SS	Size	lom.technical.size	SS
Format	Defined by DSpace as a refinement of dc.format: dc.format.mimetype	SS			
URI	Defined by DSpace as a refinement of dc.identifier: dc.identifier.uri	SS	General Identifier	Lom.general.identifier	M
IMS Content Package	Defined by DSpace as a refinement of dc.relation: dc.relation.uri	M, NR (IMS Content Packages)	Identifier	lom.relation.identifier	O
Learning Object Description	Defined by DSpace as a refinement of dc.description: dc.description.uri	M, NR (IMS Content Packages)	Description	lom.relation.description	O
			Catalog Entry	lom.metametadata.identifier	SS
			Coverage	dc.coverage	O, NR
			Version	lom.lifecycle.version	SS
			Status	lom.lifecycle.status	M, NR
			Status Remark	Locally defined by TLF as general	M, NR

				comments / descriptions about the object	
			Contribution Remark	locally defined by TLF as general comments / descriptions about the contribution	O
			Metadata Language	lom.metametadata.language	SS (ISO639 language code)
			Kind	lom.relation.kind	O, NR
			Resource	lom.relation.resource	O
			Topic	dc.subject	M (ScOT thesaurus)
			Curriculum	Locally defined	M, NR
			Learning Area	Locally defined by TLF as a qualifier for Curriculum	M, R (controlled voc)
			Strand	Locally defined byTLF as a qualifier for Curriculum	M (controlled voc)
			Content/Concept	Locally defined by TLF as a qualifier for Curriculum	M
			Skills/Process	Locally defined by TLF as a qualifier for Curriculum	M, R
			Student Activity	Locally defined by TLF as a qualifier for Resource Type	M
			Learning Design	Locally defined by TLF as a qualifier for Resource Type	M
			Audience Type	edna.audience	M
			Audience Sector	edna.sector	M
			User Level	edna.userLevel	M
			Annotation	lom.annotation	O
			Annotation Person	lom.annotation.person	O, NR
			Annotation Date	lom.annotation.date	O, NR (W3C-DTF)
			Annotation Description	lom.annotation.description	O, NR
			Key Learning Objectives	Locally defined by TLF	M
			Educational Value	Locally defined by TLF	M
			Installation Remarks	lom.technical.installationRemarks	O, NR
			Other Platform Requirements	lom.technical.requirements.otherPlatformRequirements	O, NR
			Duration	lom.technical.duration	O, NR (ISO8601 period)
			Web Accessibility Initiative Checkpoint	Locally defined by TLF	O (WCAG1.0, ATAG1.0)
			Access Profile	Locally defined by TLF	M

13. Comparison of metadata elements used in THECB LOR and FAO LR

Mandatory (M) Mandatory if applicable (MA**)** Strongly recommended (R**)** Optional (O)
Mystem-supplied (SS) Repeatable (R) Not repeatable (NR) Conditional (C)

THECB LOR Metadata Element Set			**FAO LR**		
Label	**Source**	**Note/ Value**	**Label**	**Source**	**Note / Value**
Title	dc.title	M, NR	Title	dc.title	M,R
Other Title	dc.title.alternative	MA, R	Supplement Title	ags.titleSupplement	O,R
Course Structure	dc.relation.isPartOf	MA, R			
Discipline and Subdiscipline	lom.classification.taxonPath.taxon	M, R			
Subjects	dc.subject	M, R/ locally developed	Subject/FAO Categories Subject/Keywords	ags.subjectClassification ags.subjectThesaurus	M,R M,R
Summary	dc.description.abstract	MA, NR	Abstract	dc.description.abstract	O,R
Learning Object's Content	dc.description.tableOfConents	O, NR			
Language	dc.language	MA, NR	Language	ac.language	
Intended Educational Audience	dc.audience.educationLevel	M, NR	Intended End User Role	Lom.educational.intendedEnd UserRole	O,R
Learning Object Type	dc.type	M, NR/	Type	dc.type	M,R/ locally defined vocabulary
Instructional Method	dc.instructionalMethod	M, R			
Interactivity Type	lom.educational.interactivityType	M, R			
Interactivity Level	lom.educational.interactivityLevel	M, NR	Interactivity Level	lom.educational.interactivityLevel	O,NR
Typical Learning Time	lom.educational.typcialLearningTime	M, NR	Typical Learning Time	lom.educational.typicalLearningTime	O,NR
Difficulty Level	lom.educational.difficulty	M, NR			
Technical Requirement	lom.technical.requirement	O, R			
Media Format	dc.format	O, NR/text, audio, video, multimedia	Format	dc.format	M, NR/CD-Rom, DVD, Paper only document, Electronic document, Slides, Website, Audio, Vedio, other
Authors	DSpace defined as dc.contributor.author	MA, R	Creator	dc.creator	O,R
Author's Affiliation	v dc.contributor.affiliation	O, R			
Other Contributors	DSpace defined as dc.contributor.other	O, R			

Date Published	dc.date.dateAccepted	MA, NR/ Mon. YYYY	Date	dc.date.issued	M, NR
Publisher	dc.publisher	O, R	Publisher	dc.publisher	M, NR
Creation and Ownership Information	dc.provenance	O, R			
Rights	dc.rights	M	Rights	ags.rightsStatement	O,NR
Access and Use Rights	dc.rights.accessRights	MA, NR	Cost	lom.rights.cost	
Access and Use License	dc.rights.license	O, NR			
Rights Holder	dc.rights.rightsHolder	MA, NR			
Individual Cataloger	gem.cataloging.individualCataloger	M, NR			
Domain Cataloger	Locally defined as gem.cataloging.individualCatalogerDomain	M, NR			
Date Issued	DSpace defined as dc.date.dateIssued	SS			
Date Accessioned	DSpace defined as dc.date.dateAccessioned	SS			
Date Available	DSpace defined as dc.date.dateAvailable	SS			
Size	dc.format.extent	SS	Size	lom.technical.size	O/NR
Format	DSpace defined as dc.format.mimetype	SS			
URI	DSpace defined as dc.identifier.uri	SS	Identifier	dc.identifier	M,NR
IMS Content Package	DSpace defined as dc.relation.uri	M, NR	Relation: Collection	dc.relation.hasPart	
Learning Object Description	DSpace defined as dc.description.uri	M, NR	Relation: Collection	dc.relation.isPartOf	
			Notes	ags.descriptionNotes	O, NR
			Relation: Language version	ags.relationIsTranslationOf/relationHasTranslation	O,R
			Region	dc.coverage.spatial	O,R
			Country	dc.coverage.spatial	O,R
			Context	lom.educational.context	O,R

14. Vocabularies of Learning Object Type in different repositories

THECB LOR NSDL Learning Resource Type (Draft vocabulary)	LOM	CanCore	GEM-type	DCMI-type	iLumina	Inture	FAO
Abstract	Exercise	Exercise	Activity	Collection	Course	Journals - full-text	Best practice
Annotation	Simulation	Simulation	Artifact	Dataset	Lesson	Journals - contents and abstracts	Case study
Article	Questionnaire	Questionnaire	Best practice	Event	Book	Government publications	Exercise
Artifact	Diagram	Diagram	Catalog record	Image	Presentation	Legislation	Guidelines
Ask-an-Expert	Figure	Figure	Collection	Interactive Resource	Example	Blogs	Lesson
Assessment	Graph	Graph	Community	Moving Image	Demonstration	Conference papers	Module
Bibliography	Index	Index	Course	Physical Object	Simulation	Contracts and procurement	Monitoring and Evaluation techniques
Broadcast	Slide	Slide	Curriculum	Service	Lab	Digests	Policy brief
Case Study	Table	Table	Curriculum support	Software	Exercise	E-books	Portal
Clearinghouse	Narrative Text	Narrative Text	Data set	Sound	Assessment	Law reports	Promotional material
Course	Exam	Exam	Educator's guide	Still Image	Project	Papers/reports/articles (individual) Papers/reports/articles (collections)	Reference material
Curriculum	Problem statement	Problem statement	Environment	Text	Dataset	Patents	
Data Set	Self assessment	Self assessment	Event		Syllabus	Patient information leaflets	
Demonstration	Lecture	Lecture	Form		Lesson Plan	Position statements	
Experiment			Image set		Teacher Tool	Practice guidelines	
Fiction			Lesson plan		Learner Tool	Primary source	
Form			Literature		Manager Tool	Product information	

Forum			Primary source			Reviews	
Game			Project			Secondary source	
Glossary			Realia			Standards	
Illustration			Reference			Subject guides	
Instructor Guide			Research study			Systematic reviews	
Lesson			Secondary source			Texts	
Map			Serial			Theses	
Music			Service			Treaties	
Oral History			Story			Associations	
Periodical			Study guide			Companies	
Photograph			Test			Government bodies	
Portal			Tool			Non-profit organisations	
Presentation			Unit of instruction			Other organisations	
Problem Set						Professional organisations	
Project						Publishers	
Reference						Recruitment agencies	
Remotely Sensed Imagery						Publishers	
Report						Recruitment agencies	
Simulation						Case studies	
Study Guide						Field studies and field guides	
Syllabus						Lab experiments	
Textbook						Learning materials	
Thesis						Lecture notes	
Tutorial						Other education materials	
Field Trip						Tutorials	
Weblog						Mailing lists and discussion groups	
						News Product news	

						Events	
						Projects	
						Bibliographic databases	
						Datasets	
						Non-bibliographic databases	
						Sequence databases	
						Specimen databases	
						FAQs Reference sources	
						Administration related resources	
						FE institutions and departments	
						HE institutions and departments	
						Research related resources	
						Schools	
						Collections	
						Research centres and projects	
						Services	
						Images	
						Interactive resources	

15. Comparison of LOM elements used in different Application Profiles

(FAO, 2006)

Y: yes, included N: no, not included M: mandatory O: optional S: system supplied

General

THECB LOR	LOM Element	CanCore	SCORM	UK Lom Core	CGIAR	Dublin Core
	1: General	Y	M	M	M	
	1.1: Identifier	Y	M	M	M	
	1.1.1: Catalog	Y	M	M	M	
Identifier(S)	1.1.2: Entry	Y	M	M	M	DC.Identifier
Title (M)	1.2: Title	Y	M	M	M	DC.Title
Other tile	1.2: Title					DC. Title.alternative
Language (M)	1.3: Language	Y	O	M	M	DC.Language
Summary (M)	1.4: Description	Y	M	M	O	DC.Description.abstract
Learning Object's Contents O	1.4: Description					DC.Description.tableOf Contents
Subjects (M)	1.5: Keyword	Y	M	O	O	DC.Subject
N	1.6: Coverage	N	O	O	O	DC.Coverage
N	1.7: Structure	N	O	O	O	
N	1.8: Aggregation Level	Y	O	O	O	

Lifecycle

THECB LOR	LOM Element	CanCore	SCORM	UK Lom Core	CGIAR	Dublin Core
	2: Life Cycle	Y	M	M	M	
	2.1: Version	Y	M	O	O	
	2.2: Status	N	M	O	O	
	2.3: Contribute	Y	O	M	M?	
	2.3.1: Role	Y	O	M	M	
Author (M) Other contributors (M) Publisher (M)	2.3.2: Entity	Y	O	M	M	DC.Creator or DC.Other Contributor or Publisher

Author affiliation (O)	N					N
Date Published (M) Date accessioned(S) Date available(S) Date issued(S)	2.3.3: Date	Y	O	O	M	Date. Created Date Accepted Date Copyright Date Submitted Issued Modified Valid

Meta-Metadata

THECB LOR	LOM Element	CanCore	SCORM	UK Lom Core	CGIAR	Dublin Core
N	3: Meta-Metadata	Y	M	M	M	
	3.1: Identifier	Y	M	M	M	
	3.1.1: Catalog	Y	M	M	M	
	3.1.2: Entry	Y	M	M	M	
	3.2: Contribute	Y	O	M	M	
	3.2.1: Role	Y	O	M	M	
	3.2.2: Entity	Y	O	M	M	
	3.2.3: Date	Y	O	M	M	
	3.3: Metadata Schema	Y	M	M	M	
	3.4: Language	Y	O	M	M	

Technical

THECB LOR	LOM Element	CanCore	SCORM	UK Lom Core	CGIAR	Dublin Core
	4: Technical	Y	M	M	O	
Media Format (O) Medium (S)	4.1: Format	Y	M	M	O	DC.Format. DC.format.extent DC.format.medium
Size (S)	4.2: Size	Y	O	O	O	
N	4.3: Location	Y	M	M	O	

Technical Requirements (M)	4.4: Requirement	N	O	O	O	
	4.4.1: OrComposite	N	O	O	O	
	4.4.1.1: Type	N	O	O	O	
	4.4.1.2: Name	N	O	O	O	
	4.4.1.3: Minimum Version	N	O	O	O	
	4.4.1.4: Maximum Version	N	O	O	O	
	4.5: Installation Remarks	N	O	O	O	
	4.6: Other Platform Requirements	Y	O	O	O	
	4.7: Duration	Y	O	O	O	

Educational

THECB LOR	LOM Element	CanCore	SCORM	UK Lom Core	CGIAR	Dublin Core-Education
	5: Educational	Y	O	O	M	
Educational Interactivity Type (O)	5.1: Interactivity Type	N	O	O	M	
Learning Object Type(M)	5.2: Learning Resource Type	Y	O	O	M	DC.Type
Educational Interactivity Level (O)	5.3: Interactivity Level	Y	O	O	M	N
	5.4: Semantic Density	N	O	O	O	
	5.5: Intended End User Role	Y	O	O	M	
Audience Educational Level(O)	5.6: Context	Y	O	O	M	Education Level
	5.7: Typical Age Range	Y	O	O	O??	
Difficulty Level (O)	5.8: Difficulty	N	O	O	O	N
Typical Learning Time(O)	5.9: Typical Learning Time	Y	O	O	O	N
	5.10: Description	N	O	O	O	
	5.11: Language	Y	O	O	O??	
Instructional Method(O)						Instructional method

Rights

THECB LOR	LOM Element	CanCore	SCORM	UK LOM Core	CGIAR	Dublin Core
Intellectual Property Rights (M)	6: Rights	Y	M	M	M	Rights
	6.1: Cost	Y	M	O	M	
Access Rights(M)	6.2: Copyright and Other Restrictions	Y	M	M	M	Access Rights
License(M)	N					License
	6.3: Description	Y	O	M	O	
Rights Holder(M)	N					Rights Holder
Creation and Ownership Information (O)	N					Provenance

Relation

THECB LOR	LOM Element	CanCore	SCORM	UK LOM Core	CGIAR	Dublin Core-Education
	7: Relation	Y	O	O	O	Relation
	7.1: Kind	Y	O	O	O	
						Conforms To
						Has Format
						Has Part
						Has Version
						Is Format of
Course Structure(M)						Is Part Of
						Is Referenced By
						Is Replaced By
						Is Required By
						Is Version Of
						Referenced

						Replaces
						Requires
	7.2: Resource	Y	O	O	O	Source
	7.2.1: Identifier	Y	O	O	O	
	7.2.1.1: Catalog	Y	O	O	O	
	7.2.1.2: Entry	Y	O	O	O	
	7.2.2: Description	N	O	O	O	
IMS Content Package(M)	N					N
Learning Object Description(M)	N					N

Annotation

THECB LOR	LOM Element	CanCore	SCORM	UK LOM Core	CGIAR	Dublin Core-Education
	8: Annotation	Y	O	O	O	
	8.1: Entity	Y	O	O	O	
	8.2: Date	Y	O	O	O	
	8.3: Description	Y	O	O	O	

Classification

THECB LOR	LOM Element	CanCore	SCORM	UK Lom Core	CGIAR	Dublin Core -Education
	9: Classification	Y	M	O	M	DC.Subject
Metadata cataloger	N					N
Domain cataloger	N					N
	9.1: Purpose	Y	M	O	M	
	9.2: Taxon Path	Y	O	O	M	
	9.2.1: Source	Y	O	O	M	
	9.2.2: Taxon	Y	O	O	M	

	9.2.2.1: Id	Y	O	O	M	
Discipline and Sub-Discipline	9.2.2.2: Entry	Y	O	O	M	N
	9.3: Description	N	M	O	O	
	9.4: Keyword	Y	M	O	O	

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