

BEN METADATA SPECIFICATION

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Overview

- The purpose of the BEN metadata specification is to support the cataloging of BEN learning resources and user discovery of biology teaching and learning resources.
- The metadata specification is based on the Learning Objects Metadata specification, an IEEE standard. It is known as BEN-LOM v1.0.
- The metadata specification is divided into required and optional fields to maximize extensibility and utility for the current and future partners in the Collaborative.



Categories

- The BEN-LOM is divided into the following categories:
 - General
 - Life Cycle
 - Meta-Metadata
 - Technical
 - Educational
 - Rights
 - Classification



GENERAL

- Title: Should be the unique name of the resource, although uniqueness is not enforced.
- Description: Summary or abstract of the resource
- Keywords: Words that might be used to search for the resource



LIFE CYCLE

- Author: Person who created the resource
 - At least one instance of the author is required
 - Multiple authors are allowed
- Publisher: The person or organization who published the resource, usually the digital library
- All contact information is stored as a vCard
 - Fields include:
 - Name
 - Email
 - Institution
 - Department
 - vCard is generally automatically generated and parsed by software; as a practical matter, users need only enter name, email, institution and department.



META-METADATA

- Creator: Person who entered the metadata into the catalog
 - One instance of creator is required
 - Should identify the person who created the metadata for the learning resource
- Validator: Person who approved the metadata for publishing
 - One instance of validator is required
 - Should identify the BEN partner organization that has reviewed or validated the metadata record
- Information about creators and validators is stored in vCard format



TECHNICAL

- Format: IANA registered MIME types
 - e.g., “text/html”, “image/gif”, etc.
 - This information is usually collected automatically by software.
 - Multiple instances of this field are allowed for resources that are provided in more than one format
- Location: Uniform Registered Locator (URL)
 - There may be multiple instances for resources that exist at more than one location
- Size – The size of the resource in bytes.
 - This information is usually collected automatically by software.



EDUCATIONAL, Part 1

- Learning Resource Type: describes what type of education resource the object is.
 - e.g. lesson plan, diagram
 - Full vocabulary described on page 6 of BEN Metadata White Paper (http://www.biosciednet.org/docs/BEN_Metadata_White_Paper_V5.pdf)
 - The vocabulary was developed based on the types of resources that are expected to be available from the BEN collection and the way in which potential users think about resource types
 - Strict adherence to the BEN Learning Resource Type vocabulary is mandatory.



EDUCATIONAL, Part 2

- Intended End User Role: Teacher, Author, Learner, Manager
 - This is the LOM vocabulary for intended end user role
- Context: Education Level
 - Full vocabulary described on page 5 of BEN Metadata White Paper
 - There can be multiple context fields in the case of a resource applicable to more than one context
 - For example, a resource may be suitable for high school upper division and undergraduate lower division
 - Strict adherence to the BEN Context vocabulary is mandatory.



RIGHTS

- Cost: Yes or No
- Copyright and Other Restrictions: Yes or No
- Description: If there is a cost, copyright or other restrictions, describe the details here.



CLASSIFICATION, Part 1

- Resources may be classified in several ways using LOM's flexible classification method.
 - Each classification must have a purpose.
 - For each purpose, there must be at least one (or possibly several) classification sources (i.e. controlled vocabularies).
 - For each classification source, there must be at least one (or possibly several) taxons (i.e. vocabulary terms)



CLASSIFICATION, Part 2

- BEN requires two classifications for each resource:
 - Discipline
 - Must have terms from the BEN Subject/Discipline Taxonomy
 - See page 9 of the BEN Metadata White Paper.
 - Other taxonomies may be used as well
 - Pedagogical Use
 - Must have terms from the BEN Pedagogical Use Taxonomy
 - See page 8 of the BEN Metadata White Paper
- Other classifications are possible, e.g. Content/Curriculum Standards.



Required Fields

- URL
- Title
- Description
- Language of Metadata
- Language of Resource
- Discipline
- Author
- Date of Authorship
- Publisher
- Date of Publication
- Cost
- Copyright or other restrictions
- Restrictions description
- Principal User
- Learning Resource Type
- Context
- Pedagogical Use
- Pedagogical Use Description



References

- NSDL Metadata Policy for Collections – http://policy.comm.nsdlib.org/cgi-bin/wiki.pl?Policy_Drafts_MS-1
- BEN Metadata White Paper – http://www.biosciednet.org/docs/BEN_Metadata_White_Paper_V5.pdf
- IEEE Learning Objects Metadata Specification – http://ltsc.ieee.org/wg12/files/LOM_1484_12_1_v1_Final_Draft.pdf
- Dublin Core – <http://www.dublincore.org/>
- LOM / Dublin Core Crosswalk – <http://www.ischool.washington.edu/sasutton/IEEE1484.html>