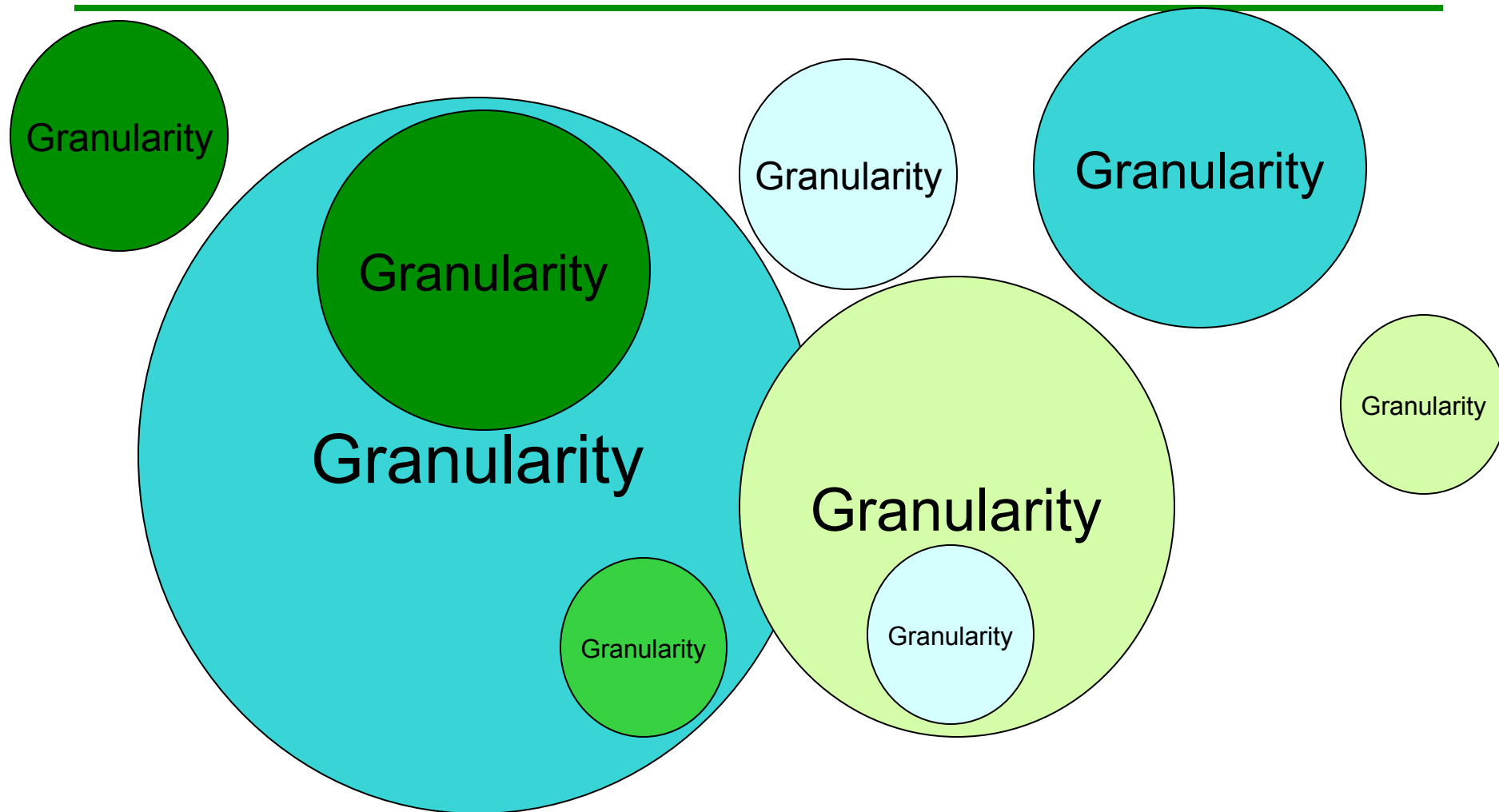


National Science Digital Library *Reusability and Interoperability Workshop*

GRANULARITY

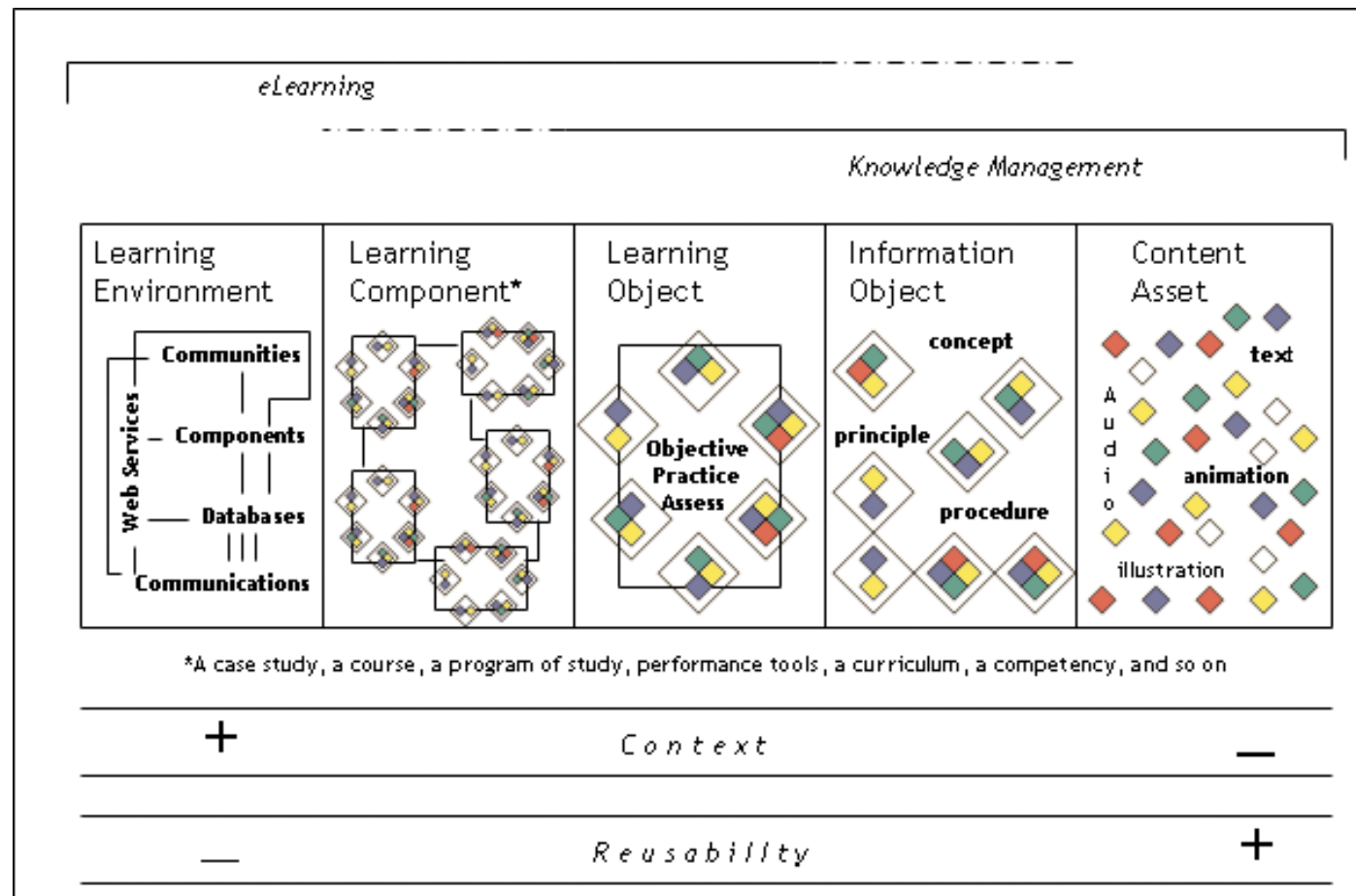
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Background

- Aggregation models combine *technological* aspects with *pedagogical* aspects.
- Intended for modification by communities of practice
- Model used is
 - Based on *Learnativity* (www.learnativity.org)
 - Adopted by the NLII Learning Object Virtual Community of Practice (Yes, that's LOVCOP)

Learnativity Aggregation Model



Taken from: *Strategies and Techniques for Designers, Developers, and Managers of eLearning* by Ellen D. Wagner. E-learning Developers' Journal, Oct. 20, 2002.

Learnavity Model - Explanation

Granularity	Explanation
Content Asset	<ul style="list-style-type: none">• Images, text snippets, audio clips, applets, etc.
Information Object	<ul style="list-style-type: none">• Text passages, Web pages, applets, etc.• Focuses on a single piece of information
Learning Object	<ul style="list-style-type: none">• A collection of Information Objects that are assembled to teach a single learning objective
Learning Component	<ul style="list-style-type: none">• Lessons, courses, etc.• Typically have multiple learning objectives and are composed of multiple learning objects
Learning Environment	<ul style="list-style-type: none">• Combination of content and technology with which a learner interacts

Instructional Design Background

- Robert Horn – structured writing (notion of “information object”)
- Work of Mager, Gagne, Dick & Carey, Bloom
- Learning Objective
 - Single measurable (or verifiable) step on the way to a learning goal.
 - Says what a learner is expected to do or learn
 - Says how an acceptable level of achievement will be verified.

Granularity, Decomposition & Reuse

Granularity	Decomposability	Reuse
Content Asset	Indecomposable	<ul style="list-style-type: none">• Rarely, modification of presentation and style.
Information Object	Into content assets.	<ul style="list-style-type: none">• Content assets sometimes extracted• Sometimes modification of presentation and style.
Learning Object	Into content assets and Information objects	<ul style="list-style-type: none">• Meant as self-contained• Some modification of presentation and style• Some extraction
Learning Component	Into learning objects	<ul style="list-style-type: none">• Suspect: Most reuse is of learning components is reuse of learning objects contained in them
Learning Environment	Into content, technology and processes that support learning	<ul style="list-style-type: none">• Component reuse• Not reusable in sense being discussed

Example

- Monty Hall Problem:
<http://oregonstate.edu/~robsonr/probpark/unexpected/montyhall.html>
- LOTT: <http://workshops.eduworks.com/LOTT/index.htm>
- Go to
http://wiscinfo.doit.wisc.edu/webct/training/sample_course.htm and follow the instructions. Select the course “LIS 651: Cataloging and Classification.”
- Jules Verne:
<http://www.dpc.ucar.edu/VoyagerJr/jvvjrtool.html>

Other Aggregation Models

- LOM
 1. The smallest level of aggregation, e.g. raw media data or fragments.
 2. A collection of level 1 learning objects, e.g. a lesson.
 3. A collection of level 2 learning objects, e.g. a course.
 4. The largest level of granularity, e.g. a set of courses that lead to a certificate
- SCORM
 - Assets
 - Sharable content objects (SCOs)
 - Content aggregations

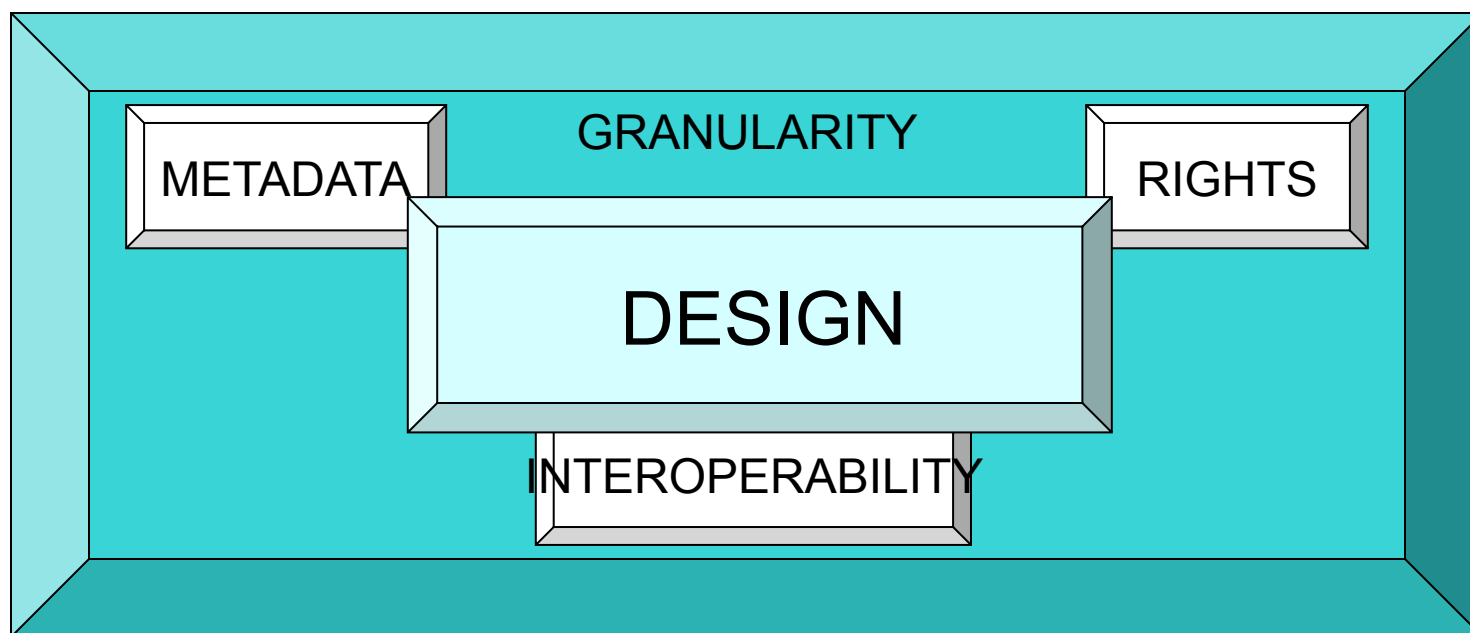
Granularity Summarized

LOM Level 4	LOM Level 3	LOM Level 2	LOM Level 1	LOM Level 1
Learning Environment	Learning Component	Learning Object	Information Object*	Content Asset
LMS / CMS “Total Experience”	Chapter Lesson Unit Course	Addresses Single Learning Objective	Fact Concept Principle Process Procedure	.doc .wav .swf .fla .jpeg .mpeg
SCORM, the Next Generation	SCORM Content Aggregation	Sharable Content Object (SCO)	Asset or SCO	Asset

*From work of Robert Horn

Applets / Flash Movies / Interactive Content

Introduction to Reusability Guidelines



Purpose

- For authors (developers, etc.)
 - Set out principles
 - Set out best practices
 - Prioritize
- For catalogers
 - Provide “rating system” based on priorities
- For end users
 - Provide information
- For Collections
 - Defines what needs to be supported

Format

- Based on Reusability Framework
- Patterned after Web Accessibility guidelines
 - World Wide Web consortium's Web content accessibility guidelines (www.w3.org/TR/WCAG10/)
- **Guideline**
 - Statement of the guideline, its scope and its purpose.
- **Techniques**
 - How the guideline applies in typical situations.
 - Each technique is given a priority. The priority scale used is:
 - **[Priority 1:** Must be satisfied to ensure reusability.]
 - **[Priority 2:** Should be satisfied to increase reusability.]
 - **[Priority 3:** More sophisticated techniques that developers may address in order to enhance reusability.]

Approach to Presenting Guidelines

- Look at each area separately
 - Rights
 - Metadata
 - Design
 - Interoperability
- Present concepts
- Present guidelines
- Show examples
- Participants examine other examples
- Discuss implications



Next: Guidelines - Rights

Questions? Comments?

