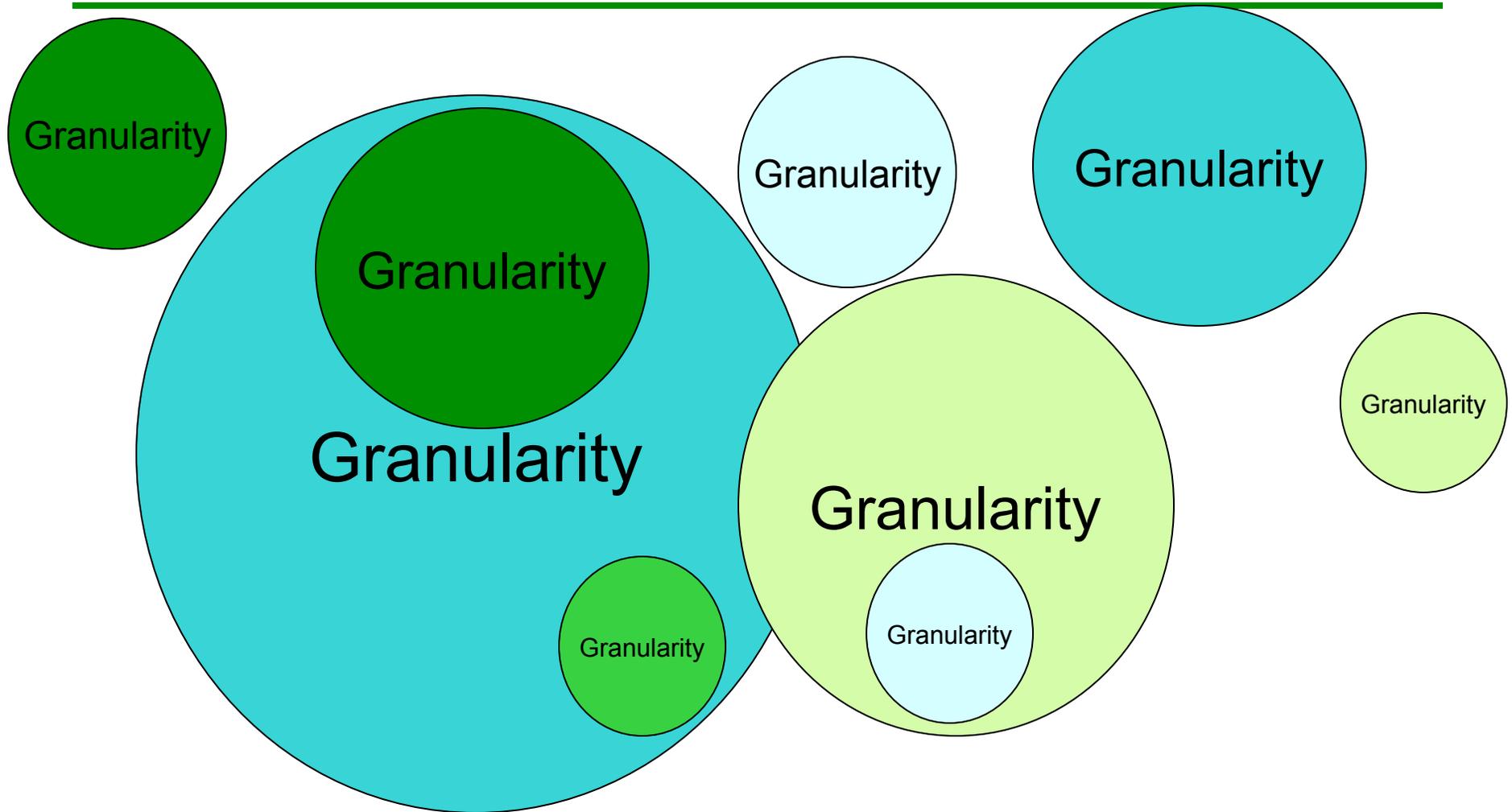




National Science Digital Library *Reusability and Interoperability Workshop*

GRANULARITY

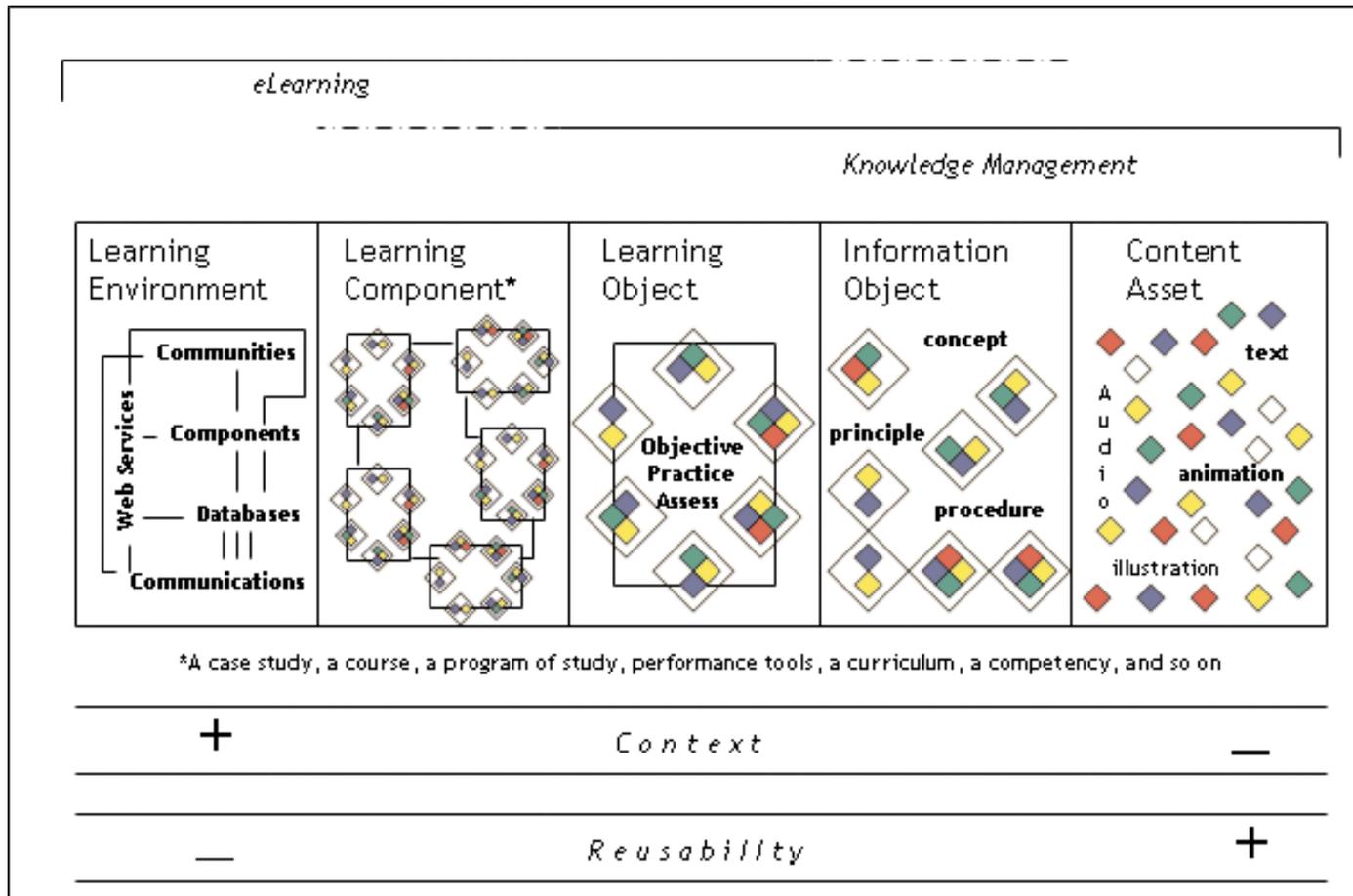
Copyright 2004 Reusable Learning
This work is licensed under a Attribution-NoDerivs-NonCommercial 1.0
Creative Commons License
(see <http://creativecommons.org/licenses/by-nd-nc/1.0/>).



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.

Lernativity 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

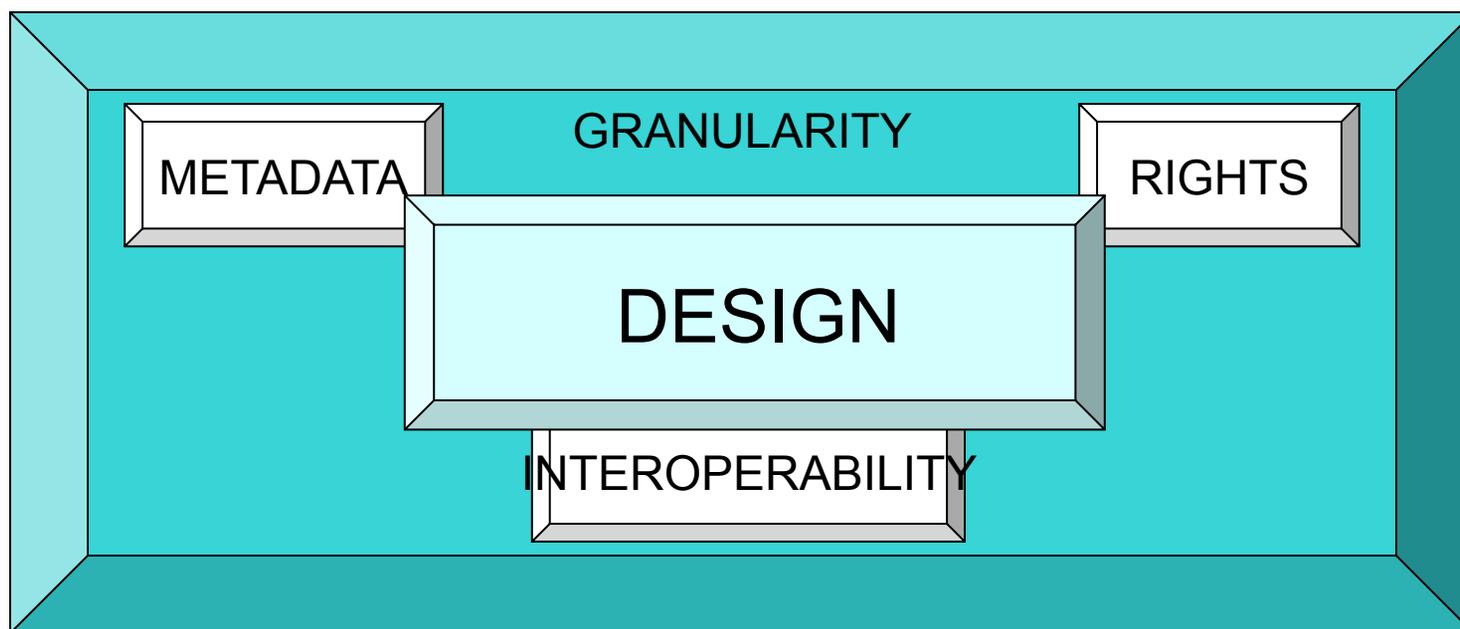
Granularity Summarized

| 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?

