

National Science Digital Library *Reusability and Interoperability Workshop*

REUSABILITY FRAMEWORK

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The Stage for Reusability

- What?
 - Digital Learning Resources
- How?
 - Adoption
 - Adaptation (may require *modification*)
- Who?
 - Educators
 - Students
 - Authors
 - Collections

Some Overarching Issues

- Diversity of potential audiences and uses
 - Math or History?
- Rights, access, attribution
 - R-E-S-P-E-C-T
- Modifiability
 - May the source be with you!
- Educators, authors and students often want *small pieces* of courses or modules
 - Sage on the Stage
 - Guide on the Side
 - Teachers in the Bleachers?
- Collections just point to resources
 - Intermediaries, not distributors
- Interoperability Meter
 - Standards: The ~~yardstick~~ by which we measure success
- Quality versus reusability
 - Context is the friend of learning and the enemy of reuse

Reusable Design

- Goal: *Create digital learning resources that*
 - *Do not limit the potential audience*
 - *Lower or remove the barriers to reuse*
 - *Do not reduce learning effectiveness*
- Belief: *Reusable design is good design*

Reuse Scenarios: Classical

- *A college professor selects a book for a class*
 - May use all of it, parts of it or just the exercises
 - Cannot copy portions and re-publish without permission
- *A keynote speaker prepares to give the third version of the same talk.*
 - Uses almost all of an existing PowerPoint presentation
 - Alters some presentation elements (such as the opening slide, the footer and the date)
 - Updates a few slides

Reuse Scenarios: Modern

- *A student uses a JPEG from a library of astronomical images.*
 - Pastes it into a report as is.
- *A teacher looks for information on native American forestry practices. She finds a university Web site that includes a section on this topic. She assigns it as reading for a report.*
 - Only part of the site will be used
 - Students may cut & paste from the site in their reports
 - May be included in a Web site the class is developing

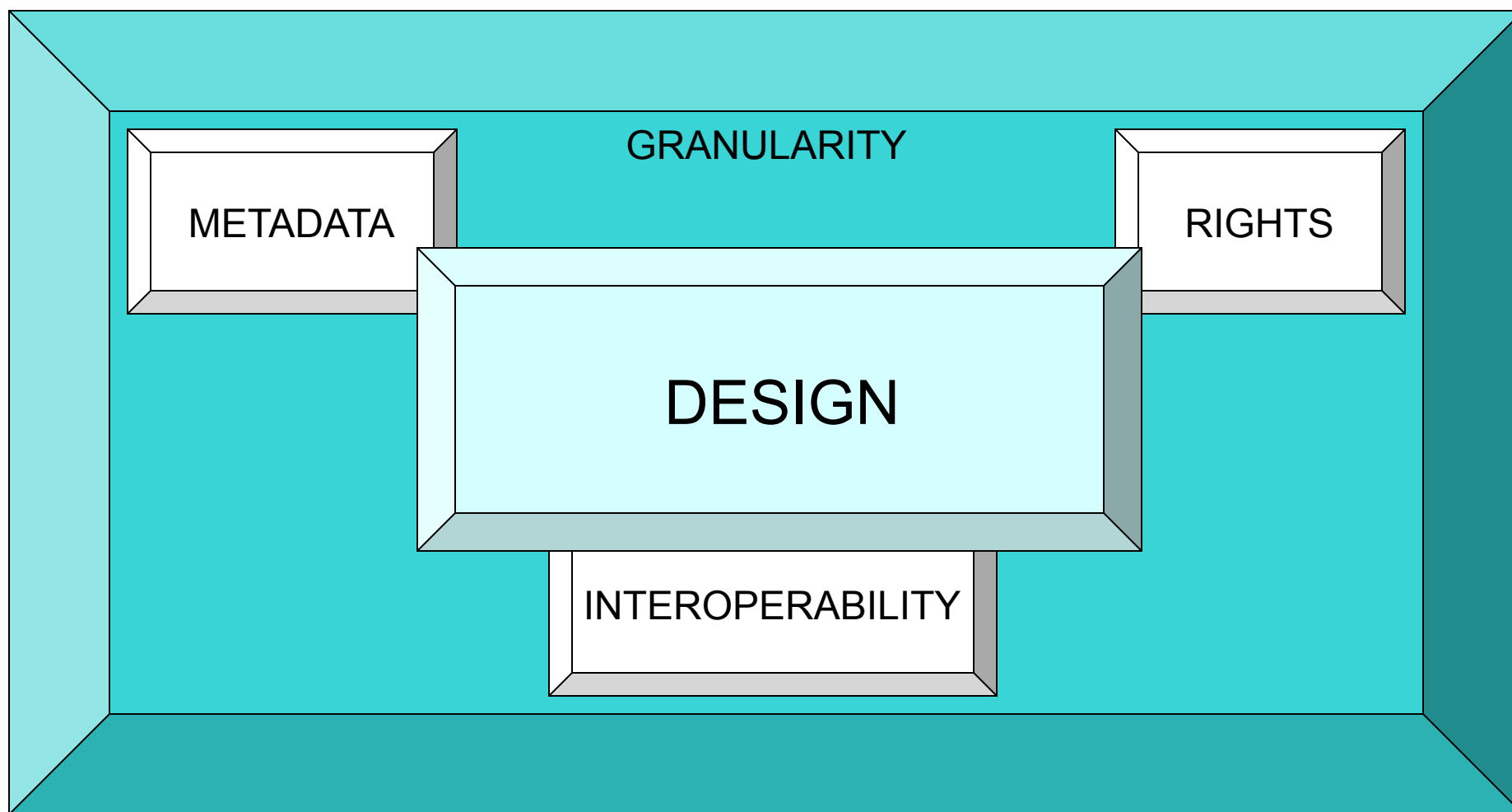
Reuse Scenario: Leading Edge

- *An applet allows students to alter parameters in a differential equation and view the resulting level curves.*
 - May be shown in a class or used in a lab
 - May be provided as supplementary material
 - May be incorporated into an online quiz
 - May be appropriate for courses other than mathematics
 - May require a particular version of a Java™ virtual machine or a viewer for a particular computer algebra system.
 - May be included in a course delivered by a Course Management System

Reuse Scenario – The Full Monty Hall

- <http://oregonstate.edu/~robsonr/probpark/unexpected/montyhall.html>
- <http://www.mste.uiuc.edu/pavel/java/dilemma/>
- <http://www.grand-illusions.com/monty.htm>
- <http://math.ucsd.edu/~crypto/Monty/montybg.html>
- <http://mathforum.org/dr.math/faq/faq.monty.hall.html>

Reusability Framework



Reusability Factors

- GRANULARITY
 - Determines meaning of “reuse”
 - Defined by “content model”
- RIGHTS
 - Copyrights
 - Terms of Use
 - Ability to Modify
 - Attribution
- METADATA
 - Descriptive
 - Context (Educational)
 - Technical
 - Usage Instructions
- DESIGN
 - Content
 - Presentation
 - Structure
 - Pedagogy
 - Context
- INTEROPERABILITY
 - Technical
 - Involves Standards



Next: Granularity

Questions? Comments?

