Making Reuse Real:
Standardized Services and Open Source Software

ADL Webinar Series
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About the presenter

‣ Current interests and passions
  • Systems thinking
  • Usability
  • Reuse
  • Competency-based education

‣ Educational background
  • Computer Science
  • Business
  • Instructional Technology
Responsibly reusing learning content should be easy for learners and content developers...

...to enable access to content anytime and anywhere, while lowering development time and costs.
Reuse Vision for Developers

- Upload
  - Easy as YouTube

- Find
  - One stop shopping. Preview
  - Direct access to content. Open access or mediated with widely held ID cards.

- Repurpose
  - Tool of choice. Source material available.

- Access
Reuse Vision for Learners

Credit

Find

Learn

Access

Learner records, profiles, badges

One stop shopping. Preview. Suggest logical next activity.

Responsive to user and device

Direct access to content. Open access or mediated with widely held ID cards.
The role of standardized services and open source software
Standardized Services

» Integrate vertically
  • Local and global infrastructure
  • Registries and repositories
  • Federation

» Integrate horizontally
  • Other software solutions
    - Training and Learning Architecture (TLA)
    - Recommendation engines
    - Authoring tools
  • Likely key to usability workflows
Open Source

› Provide implementation of standardized services for external systems
  • Encourage interoperability
  • Avoid fragmentation
  • Enable commercial innovation using permissive licenses

› Proliferate the infrastructure and make it visible
  • Fast and easy to get started
  • Support different organizational scopes
Registry Projects
## Role of Registries

<table>
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<tr>
<th>Type of System</th>
<th>Purpose</th>
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<tbody>
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Access
Paradata: a particular kind of metadata.

- Specifically, paradata is usage data.
- How is something being used?

Shared with Learning Registry based on activity streams specification

- actor, verb, object

Example:

- 10\textsuperscript{th} grade English Languages Arts Educator (actor) matched academic standard Y (verb) with resource X (object)
The Learning Registry: Stored Metadata & Paradata in a Timeline

NASA: here’s metadata about a Mars Rover animation

CTE Online: new NASA animation: I’ll show that metadata to my users

Teacher 1: this NASA animation “aligns” to this common core standard

CTE Online: here’s social metadata (“aligned”) for this NASA animation

NSDL: new NASA animation: I’ll show that metadata and resource to my users

Teacher 2: I “like/+1” this NASA animation

NSDL: here’s social metadata (“like”) for this NASA animation

Service provider shares aggregate “like” data about each resource allowing teachers from different sites to share their opinions.

Service provider runs analytics on social metadata to provide advanced recommendations.

Service provider aggregates alignment data and uses it to make searches better.
Search the CAR

Try our CAR Mobile App (CARMA) for Android devices!

LOOKING FOR THE RDL?

If you are looking for the Reimer Digital Library (RDL) you’re in the right place. Training products previously in the RDL are now available in the CAR. Search by ID, title, and/or keywords, or browse by product type and proponent on the left. If you are a Proponent for training related products/links and would like to share them with the Force, please send us an email to tell us who you are and what you want to share.
Registry Integration

Exchanging public data through standardized services
Repository Projects
## Role of Content Repositories

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Learn

Responsive to user and device

Access
New Design Project

Please choose an instructional design strategy for this project

- Gagne's Nine Events
- Modified Simulation Model

Cancel
Click here to add a title

Gagne's Nine Events
Select a section below to add content

Assets and Notes for Provide Feedback
Provide immediate feedback of students’ performance to assess and facilitate learning. Types of feedback include: Confirmatory, Corrective, Remedial, Informative, and Analytical. Confirmatory feedback informs the student they did what he or she were supposed to do. Corrective feedback informs the student of the accuracy of their performance or response. Remedial feedback directs students in the right direction to find the correct answer, but does not provide the correct answer. Informative feedback provides information (new, different, additions, suggestions) to a student and confirms that you have been actively listening. Analytical feedback provides the student with suggestions, recommendations, and information for them to correct their performance.
Current State

Repositories and Registries are Emerging!

Registries
- Focus on learner vision of reuse
- Don’t point to repurposing repositories

Repositories
- Focus on developer vision of reuse
- Don’t provide access to content that enables learners to get credit
Why is reuse more real now?

- Leading indicators for e-learning reuse are software reuse and library reuse
  - Software reuse was transformed by GitHub
  - Library reuse was transformed by Google Scholar

- E-learning is next...
  - Partnerships
  - Fiscal need
  - Open source, open content
Observations
Systems should be scalable, but fast and easy to setup and use
Systems should understand the content they are made for

Sharing **source code** through **GitHub** vs. sharing source code through **SharePoint**

Sharing **office documents** through **SharePoint** vs. sharing office documents through **GitHub**
Systems should support humans and machines

learners (final media) and
content developers (source materials)
Systems should associate content with objectives
Metadata requirements should be minimal during upload

title, description, identity, rights, objective alignment

schemas should be flexible
Connections to TLA

Repository

Publish / Harvest

Registry

Paradata
(they) did this

Upload / Download

Broker

Profiles

xAPI
I did this

Activities

LRS
Responsibly reusing learning content should be easy for learners and content developers

• Important for systems to support users and machines
• The time is right to enable the reuse of e-learning content
Questions?

Resources:

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