The UC Berkeley Digital Chemistry Library: Streamlining The Creation And Cataloguing Of Learning Objects

Project Directors
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Welcome to Digital Chemistry
'the world is our classroom'

Project Goals

Create a general method for streamlining the creation and cataloguing of rich media learning objects.

Demonstrate viability of method by establishing a digital library composed of tightly integrated learning objects drawn from blended/distance learning resources in use at UC Berkeley.

Challenges

_ How can technology streamline the process of collection design, encourage new contributions, and promote anytime, anywhere access?

_ What cataloguing strategies are required to support resources that carry extensive, domain-specific metadata or tightly integrated educational connections?
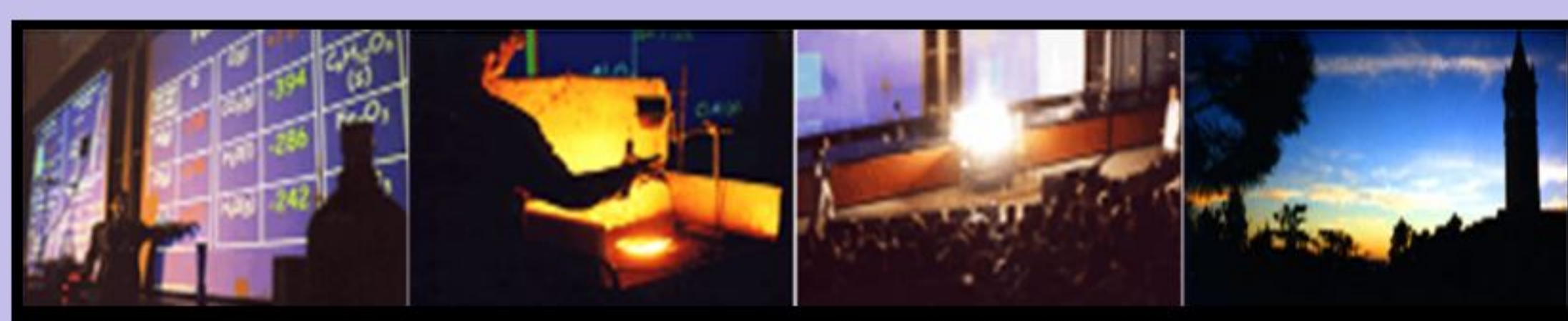
Strategies

_ build on existing practices to capture content (e.g., use of PowerPoint slides in lecture, peer interaction and concept testing)

_ provide immediate benefits for students and instructors (feedback, ePortfolios, assessment)

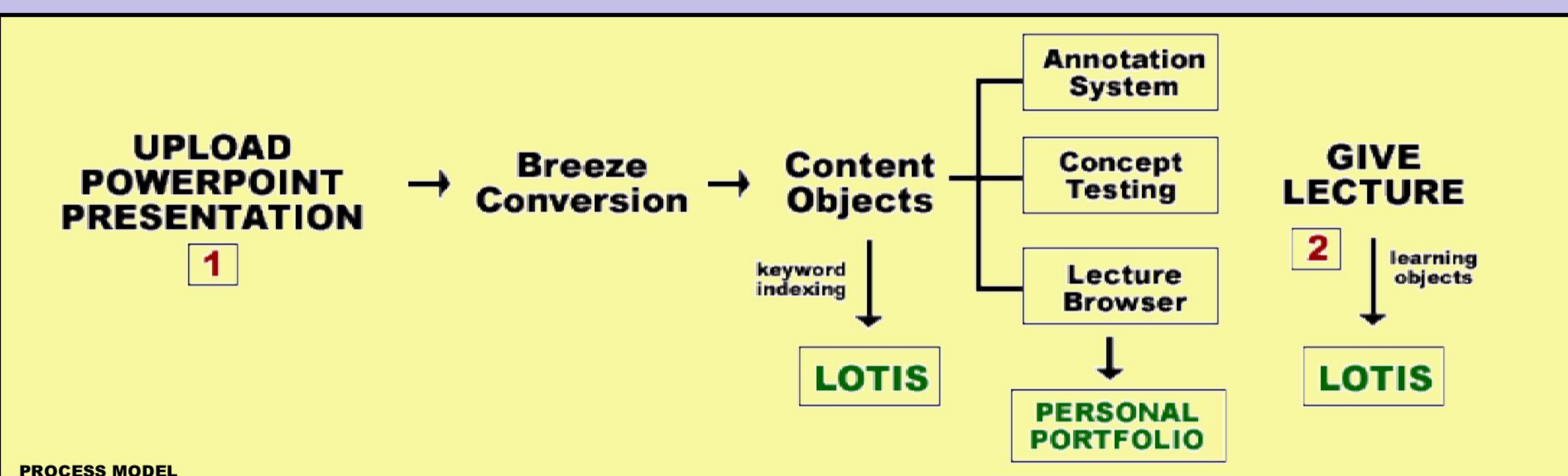_ minimize efforts to catalog resources using intelligent indexing agents

_ suggest learning goals based on semantic relationship between resources and keywords

Products

Content Creation: PRISM (Presentation, Replay, & Interaction With Streaming Media)

Content Cataloguing: LOTIS (Learning Object Tagging and Information System)

RICH MEDIA ASSETS

Encyclopedic web Site | Searchable Digital Video | Laboratory Simulations | Peer Interaction | XML data exchange | Live Demonstrations

PROCESS MODEL

UPLOAD POWERPOINT PRESENTATION [1] → Breeze Conversion → Content Objects → Annotation System / Concept Testing / Lecture Browser → GIVE LECTURE [2] learning objects

keyword indexing → LOTIS

Lecture Browser → PERSONAL PORTFOLIO

learning objects → LOTIS

Content Creation

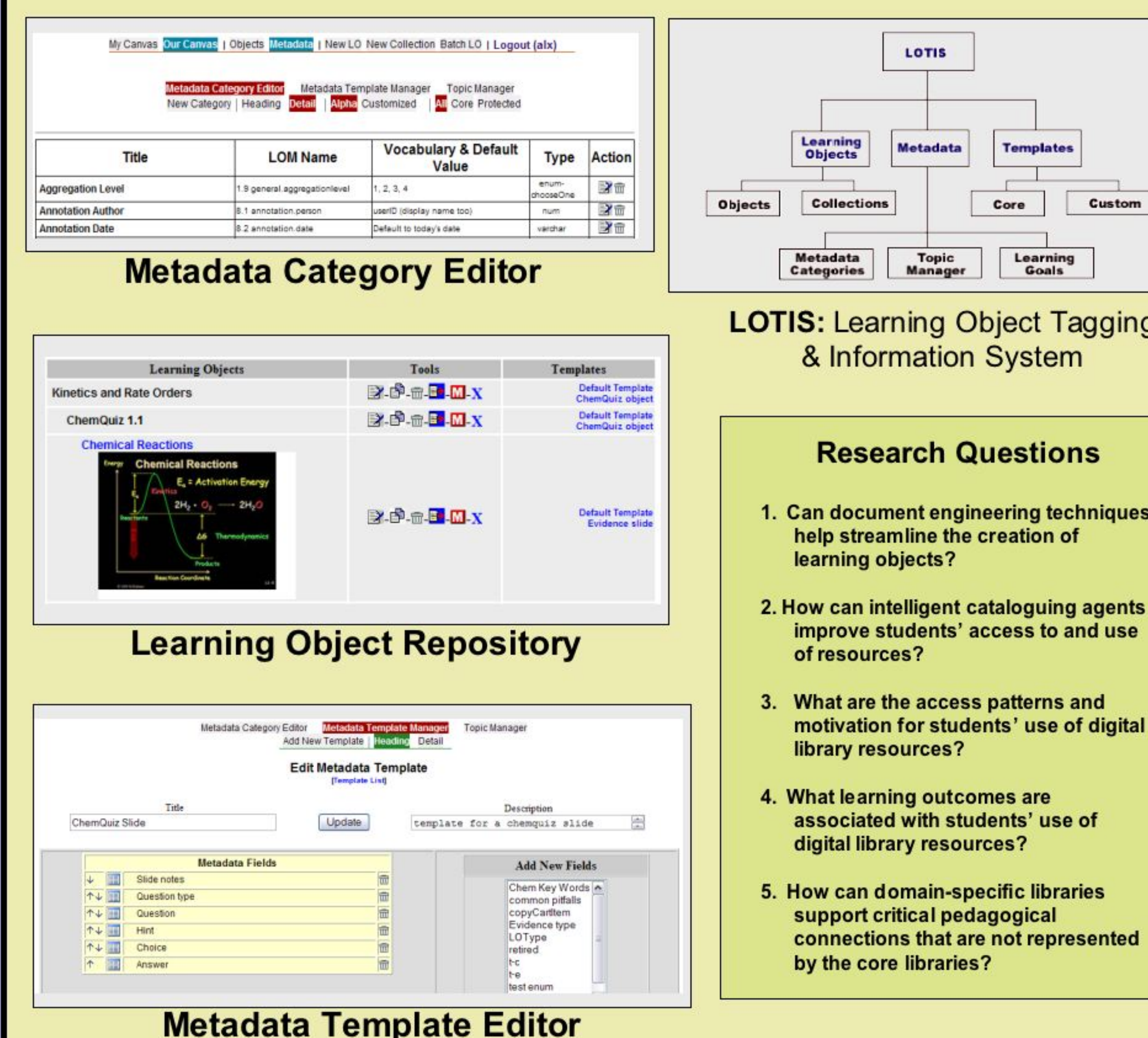### Presentation, Replay, & Interaction With Streaming Media

PRISM is a web-based suite of interactive tools that support peer interaction, concept testing, and the recording, streaming and playback of digitally-captured presentations.

PRISM: Presentation, Replay, & Interaction With Streaming Media

PRISM Components

Concept Testing/Peer Interaction

Initial Vote (web)

Collaboration + Revised Vote
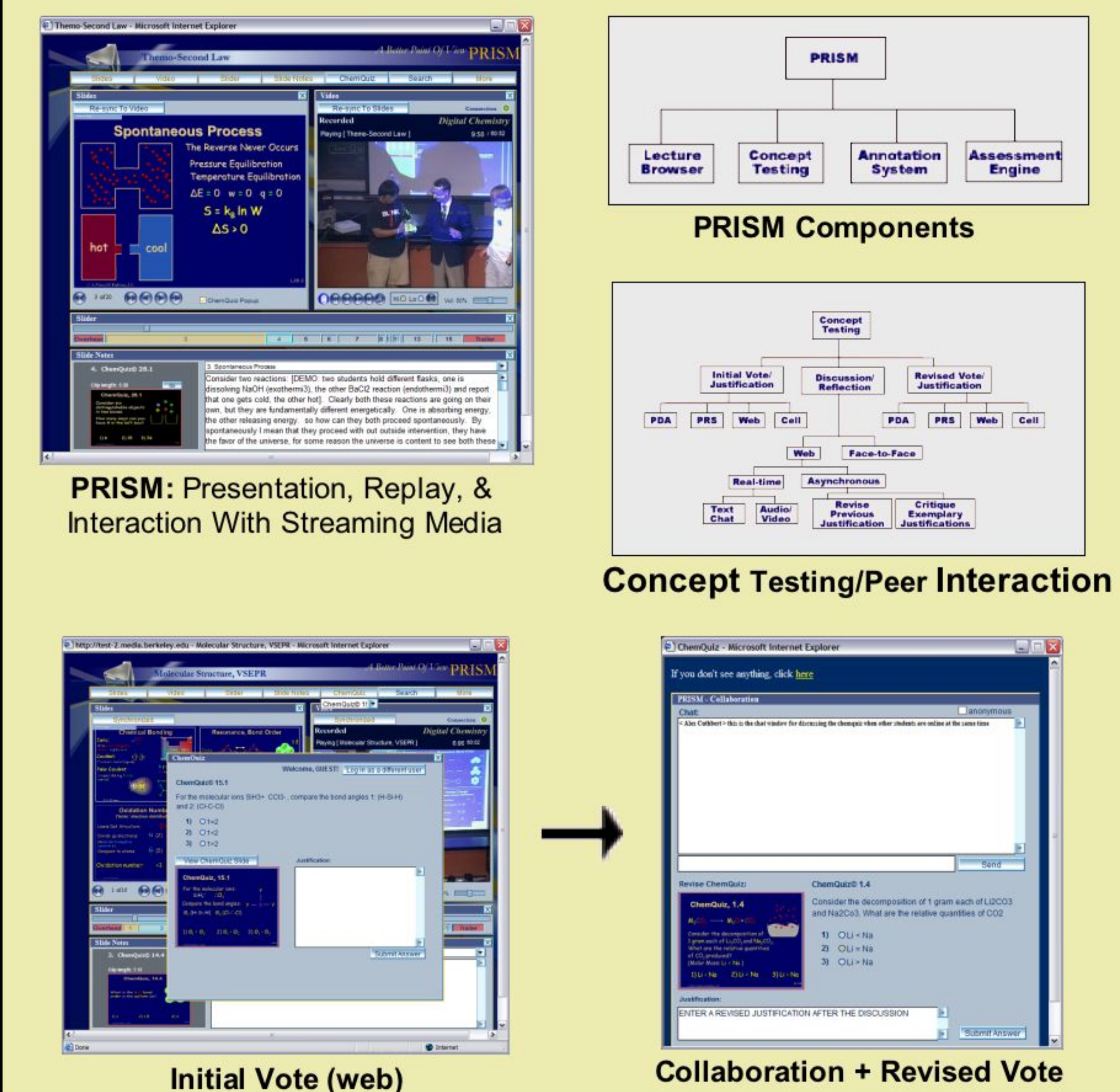
Cataloguing

Learning Object Tagging & Information System

LOTIS is a web-based system for managing Learning Objects (LOs) and assigning metadata values. LOTIS uses customizable templates and personal/shared workspaces to prepare LOs for digital libraries.

Title	LOM Name	Vocabulary & Default Value	Type	Action
Aggregation Level	1.8 general aggregationlevel	1, 2, 3, 4	enum-chooseOne	
Annotation Author	8.1 annotation.person	userID (display name too)	num	
Annotation Date	8.2 annotation.date	Default to today's date	varchar	

Metadata Category Editor

Learning Object Repository

Metadata Template Editor

**LOTIS:** Learning Object Tagging & Information System

Research Questions

1. Can document engineering techniques help streamline the creation of learning objects?

2. How can intelligent cataloguing agents improve students' access to and use of resources?

3. What are the access patterns and motivation for students' use of digital library resources?

4. What learning outcomes are associated with students' use of digital library resources?

5. How can domain-specific libraries support critical pedagogical connections that are not represented by the core libraries?
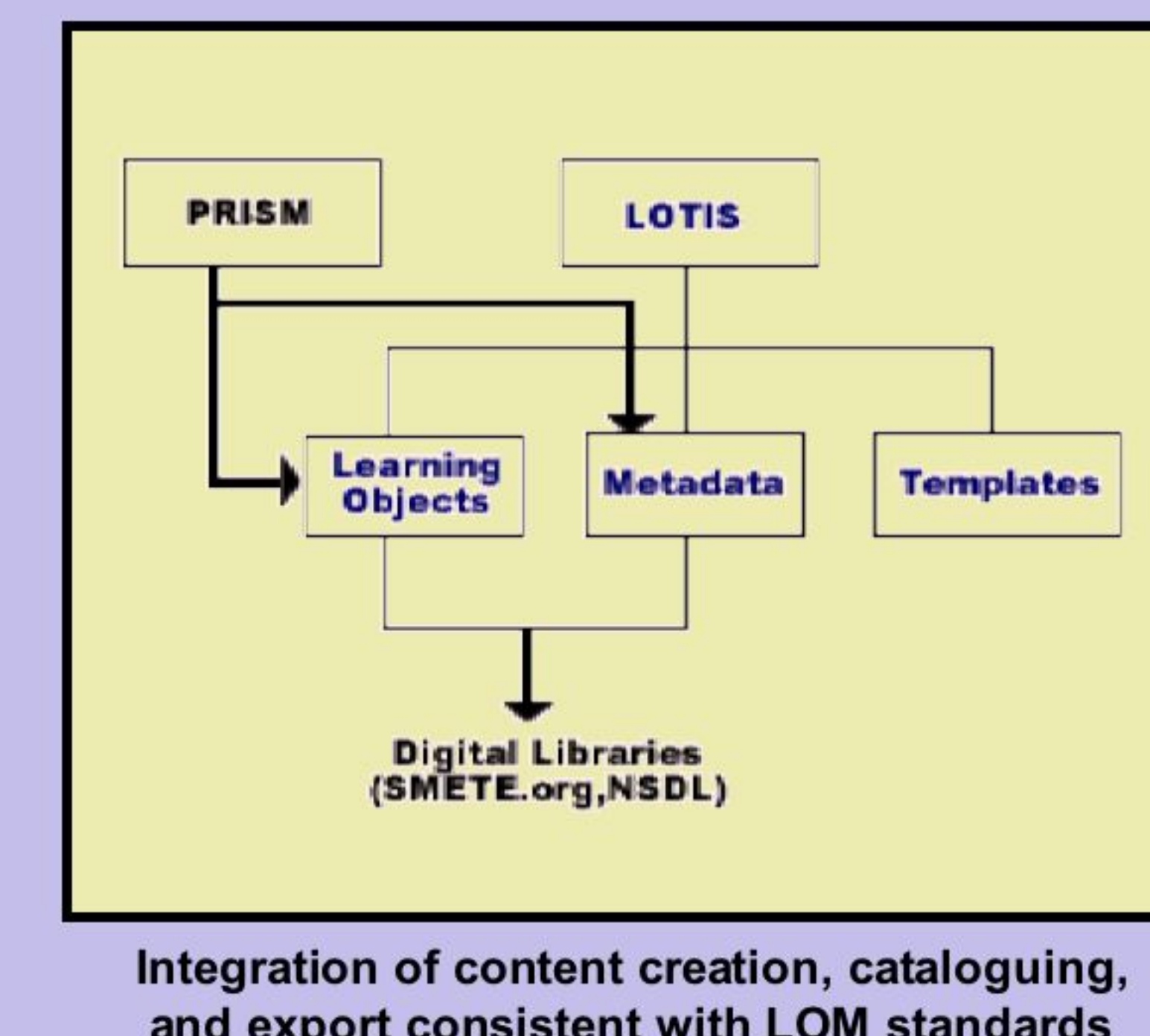
DOCUMENT ENGINEERING PROCESS
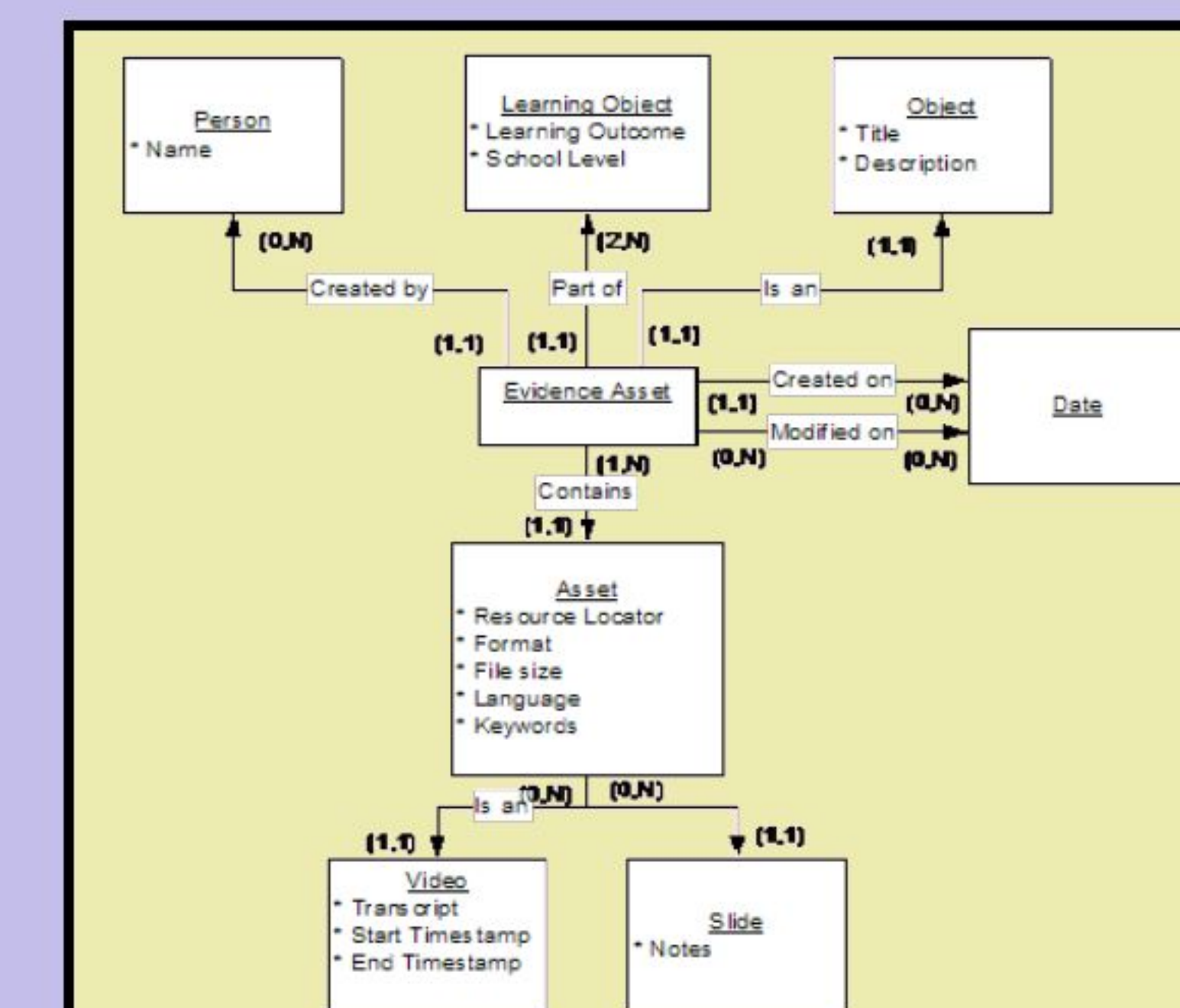
Library Sciences (SIMS) Document Schemas

Flow:
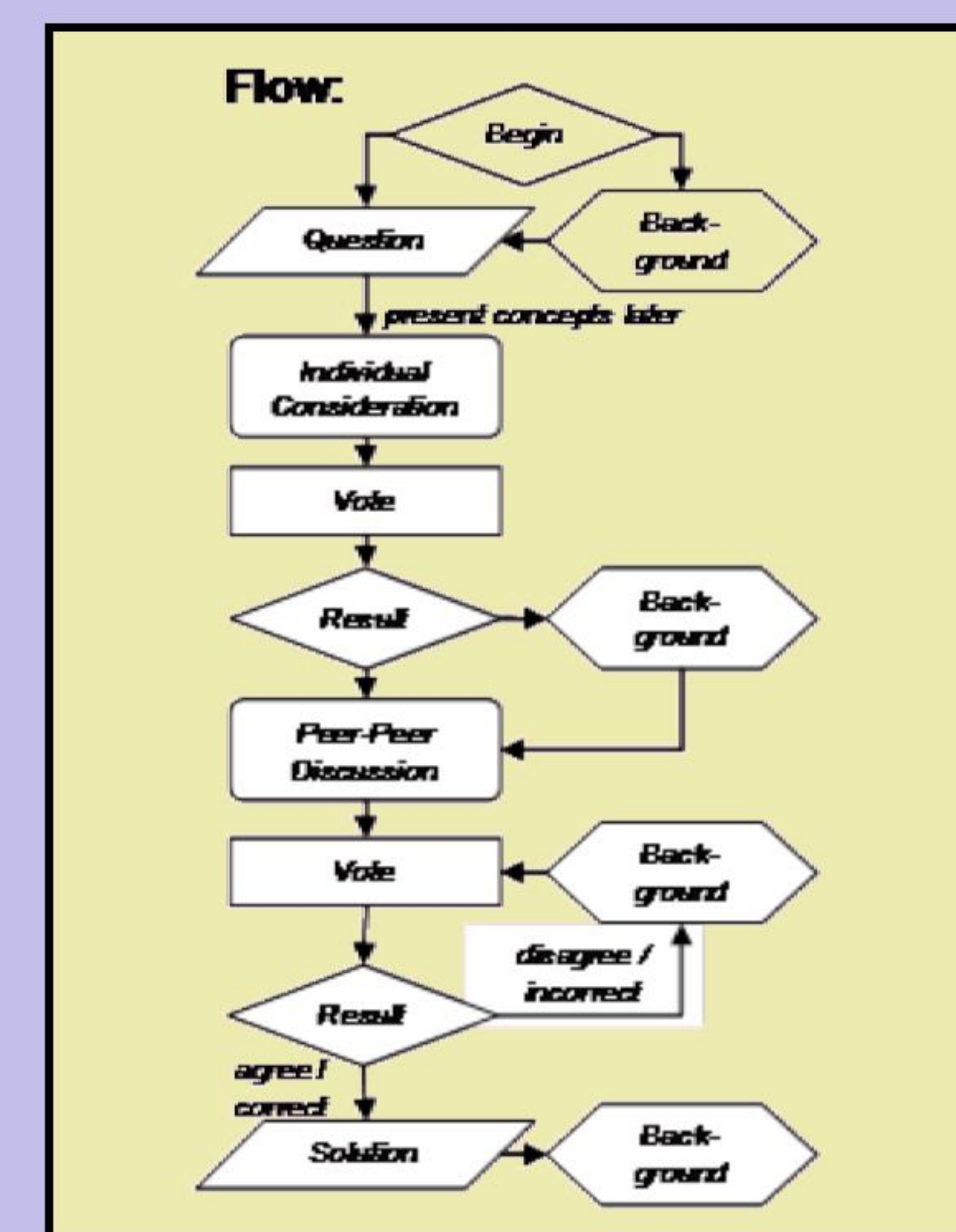
Formalized Concept Testing-Peer Interaction Models Inform Content Creation Process

Integration of content creation, cataloguing, and export consistent with LOM standards