Structure of the Talk

- A Vision of Interoperability
- Interoperability Framework
- Status Quo of the evolving Educational Repository Network
- Integration Patterns
- Future Issues
- SQI Developers & Implementers Community
The Power of Share & Re-Use

“The whole power of science is the power of shared ideas.”
(Paul Jones)

“Universities generate content every day through their courses and seminars. Then they throw it away.”
(Dennis Tsichritzis)

“Every knowledge-based organization – law firm, hospital, or professional services firm – wastes time, money and human energy recreating intellectual assets.”
(Thomas H. Davenport)

Interoperability: Share and Re-Use

- triggered by chronic under-funding & structural deficiencies (Tsichritzis 1999)
- Re-Use Scenarios: Acquisition vs. Participation (Collis & Strijker 2004)
- Various Re-Use Types:
  - adoption (take & use, data)
  - adaptation (take & customize, semantics)
  - inspiration (take & associate, pragmatics)
Interoperability II

- Vision of an Educational Semantic Web
- New Quality of Effectiveness and Efficiency in Retrieval of Learning Objects
- New Quality of Integration in e-learning applications
  - as precondition for collaboration in authoring and use
  - as precondition for sophisticated support and automation
- Open Up the closed world of proprietary applications / the hidden web

Interoperability Framework

| Semantic Model
| Applications (e.g. Query)
| Core Services (e.g. Session Management, Identifying)
| Messaging Service (e.g. SOAP, XML RPCs, JRMI, ...)
| Network Architecture (e.g. HTTP, SMTP; TCP/IP, ...)

Interoperability Stack
Interoperability Framework II

Application Services Layer (and beyond)

- Provision
- Delivery
- Contracting

Learning Object Repository Interoperability

Core Services Layer

- Authentication
- Session Management
- Identity Resolution

Basic Idea of the Process

query

Learning Repository A (Source)

Simple Query Interface Component

Transport: SQI

Common Query Language

Result in
Common Format

Learning Repository B (Target)

Local Query Language

Result in
Local Format

Result Format, Schema

Query Language, Schema

result set
Design Rationales

- **Goal**
  - Light-weight design and implementation

- **Flexible**
  - Synchronous and asynchronous mode
  - Centralized and Peer-to-Peer

- **Open**
  - Query Language (VSQI, QEL, XQuery…)
  - Result Format (complete records or not)
  - Metadata Schema (LOM, DC, …)

Interoperability

... is knocking at the door:

- HCD-Suite
- EducaNext
- Ariadne
- Clix
- BFI
- EduSource
- Edutella
- Edna
- Seminarshop
- Amazon
- KnowledgeBay
- LASON
- …

Planned:
AeShareNet, Moodle,
OU London, Polycollage, …
Integration Patterns

- Export & Advertise
- One-Way Integration
- Fully Qualified Nodes

Different Reference Implementations

Level of Integration

Case KnowledgeBay / LASON
Case Seminarshop

large content pool of courses in AT, CH, DE
~ 20,000 resources
~ 650 providers

Case EducaNext

- EducaNext is a multilingual, academic exchange portal, where members of higher education, research organisations, and professional communities can go to share, retrieve, and re-use learning resources.

- Based on Universal Brokerage Platform
- (going open source soon)
- Increase your Social Capital through Participation
Case HCD-Suite

Knowledge Worker

Tool: Web Browser + Human Capital Development Suite

HCD Suite

Publishing House

Magazines, Journals

Online Bookstore

Books

Online Marketplace

Courses

Tutorials

Intranet

Best Practice Studies
HCD Suite: Life Cycle

- Training Needs & Goals Analysis
- Selection & Planning
- Learning Delivery, Coaching & Evaluation
- Transfer and Outcome Analysis
- Budget Management
Resumé Cases

- Heterogenous Integration Patterns (SMEs, Brokers, Seminar Shops, Gateways, …)
- Easy Implementation
  (some done by students at WUW)
- Tutorial Package(s) on Implementation needed
  (=> Prolearn D5.4 in July)

Future Issues

- Ranking
- Personalization of Searches
- Query Enhancement Mechanisms
  - Disjunctive Queries
- Application Innovations
  - Indexer / Crawler / Harvester
  - „Views“ (fixed queries e.g. for watches)
SQI Developers Community

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Thanks for your Attention

Questions?