Learning Objects on the Semantic Web
Explicitly Modelling Instructional Theories and Paradigms

Abstract:

Motivation

new form of Web content that is meaningful to computers will unleash a revolution of new possibilities

and information

just in time access to training

Scenario:

Learning Services within the Semantic Web

Life-long learning will be a learner's own decision (...) the learner is mature (...) he will identify and define his own needs and preferred ways of learning (...) he will learn to learn self-organized, self-determined, and independent from predetermined curricula and institutional forms of organization.

Learning Services within the Semantic Web
What is a Learning Object?

- Tutors offering services, support and facilities according to specific concepts and models (depending on different learning theories, learning paradigms, instructional principles)
- Experts with their specific area of expertise and competence
- Learning groups to carry out collaborative teamwork enabling collaborative knowledge construction.
- Peers to perform peer-tutoring
- Learning situations: Points of Cooperations - POCs (Wessner & Pfister, in preparation) e.g.
- Learning activities
- Learning material
- Media enabling certain activities (Videoconference, workspace)
- Conceptual structures (these structures reflect specific instructional models/paradigms/principles)
- Instructional ideas (the community of teachers of primary education do not only effectually exchange learning and teaching material but also ideas of how to use them – how to teach and support learning)
- Feedback

The important aspect about these learning objects is their character of not being unspecific with regard to learning theories, learning paradigms (such as cognitivism, constructivism) and instructional principles (such as PBL, case-based, CoP etc). A videoconferencing session is not yet a learning activity. It does neither constitute, characterise nor induce a learning activity. The appropriate learning activity is a session of collaborative learning using videoconferences within project-based learning e.g. The activity might be even more specific: the mode of dyadic collaboration and the kind of structural support that influences collaborative knowledge construction (Fischer et al., 2000) characterises the activity. Another example: There is not a single concept of tutorial support, but diverse concepts, diverse roles and tasks of a tutor, depending on the design of the learning situation. The design of the learning situation is guided by different learning theories/paradigms, instructional principles. Any theory, paradigm and principle reflects specific assumptions on learning. The term “tutor” therefore does not yet imply a specific task or a specific mode of support. Within a setting of collaborative problem solving the tutorial concept of support might be totally different from a training session guided by the instructional principle of drill and practice.

Explicitly Modelling Diverse Learning Theories, Paradigms and Principles

Interactivity Level
A Simple Datastructure to Describe Learning Objects

Figure 1
Further Work

References

for Games and New Media

The 2nd International Conference on Computational Semiotics

Scientific American: Feature Article: The Semantic Web

Ästhetisierung des Denkens. Zur Postmoderne-Rezeption der Pädagogik

Kognitionswissenschaft

Neue Studien zur Bildungstheorie und Didaktik

Draft Standard for Learning Object Metadata

First Principles of Instruction. Educational Lernumgebungen

Das Essener-Lern-Modell (ELM): Ein Vorgehensmodell zur Entwicklung computerunterstützter Lehrbuch Allgemeine Didaktik. München

New Technologies for Collaborative Learning

Modellierung mit Rollen