Ontologies and Ontology Mapping for Supporting Student Assessment in an Advanced Learning System

Gilles Falquet, Luka Nerima and Jean-Claude Ziswiler

Information System Interfaces
IS Department
University of Geneva, Switzerland

Outline

- Context
  - Learning by writing hyperbooks
  - Libraries of hyperbooks
- Extension
  - Learning by conceptualizing
  - Assess concept understanding

Context: Hyperbook writing

Objectives
- Learning by writing hypertexts
- Transverse view of the course
- Show relationships between concepts
- Not in the classroom presentation order

Blended learning
- Classroom lectures
- Collaborative hypertext writing environment
Next Step

- Let the student create their own conceptual structures
- Evaluate how students understand the concepts of a course

Concept map creation

Former results
- deeper understanding of the topic
- students are more active
- lack the possibility to explain a concept in words
- resulting maps are usually of poor quality

With Hyperbooks

Simplify and enhance students’ expression
- create concepts and semantic links
- create “old-style” textual chunks with their own words
- connect formal and informal expressions

Facilitate the comparison between conceptual structures
- semi-automatic assessment
Process - conceptualizing & writing

Groups of students create their hyperbooks

Process - comparison

Reference hyperbook

Comparing Conceptual Structures

Difficult problem
- Different terms for the same concept
- Several "correct" solutions
- Different modeling competencies

Comparison technique based on
- conceptual structure (terms, and relationships)
- and attached text fragments

Output: Similarity links between concepts of different hyperbooks
Process - discussion

Discussion phase

Interconnected hyperbooks

=> a global navigation space

View other perspectives on the same concepts

Attach remarks, positions, arguments to notes

Summary of the process

• Brief introduction to conceptual structures

• Groups create their hyperbooks

• Comparison with a reference hyperbook

• Integration, discussion, improvement
Conclusion

- Assessment through hyperbook writing
- Based on concept comparison/mapping
- Using existing hyperbook software
- First experiment
  - "Semantic web" course, Oct. 2005 (master)