

**Work in progress:
Augmenting modeling artifacts with
issues, history, and awareness
information in distributed software
modeling**

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Overview

- GroupUML: reminder
- CSCW-Seminar experiment
- Next step:
 - Enhancing group design support
 - Supporting Long-term Collaborative Design
- Future work

GroupUML

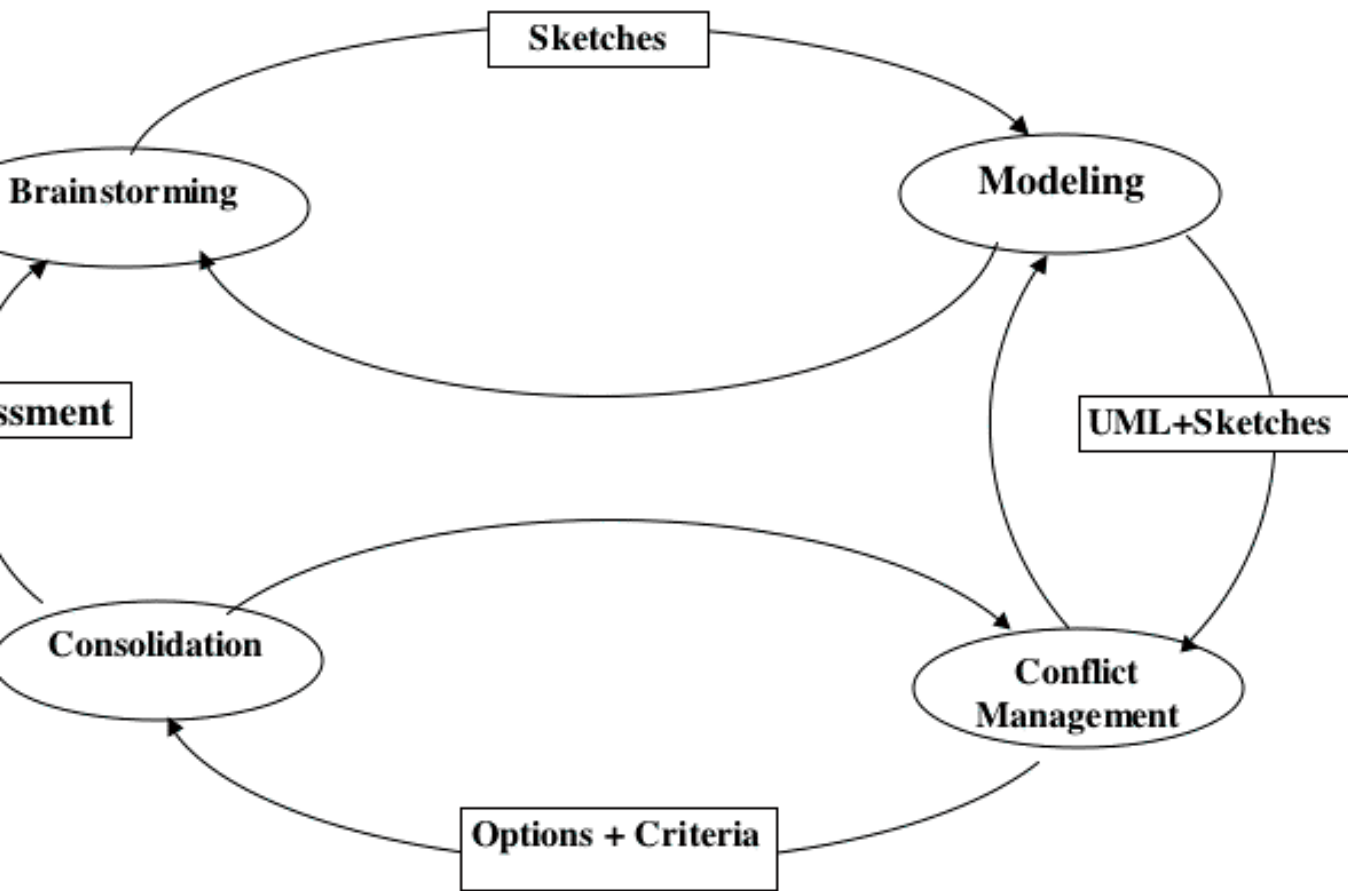
Enables Distributed UML Modeling Meetings
(same-time/different-place)

Sharing of artifacts

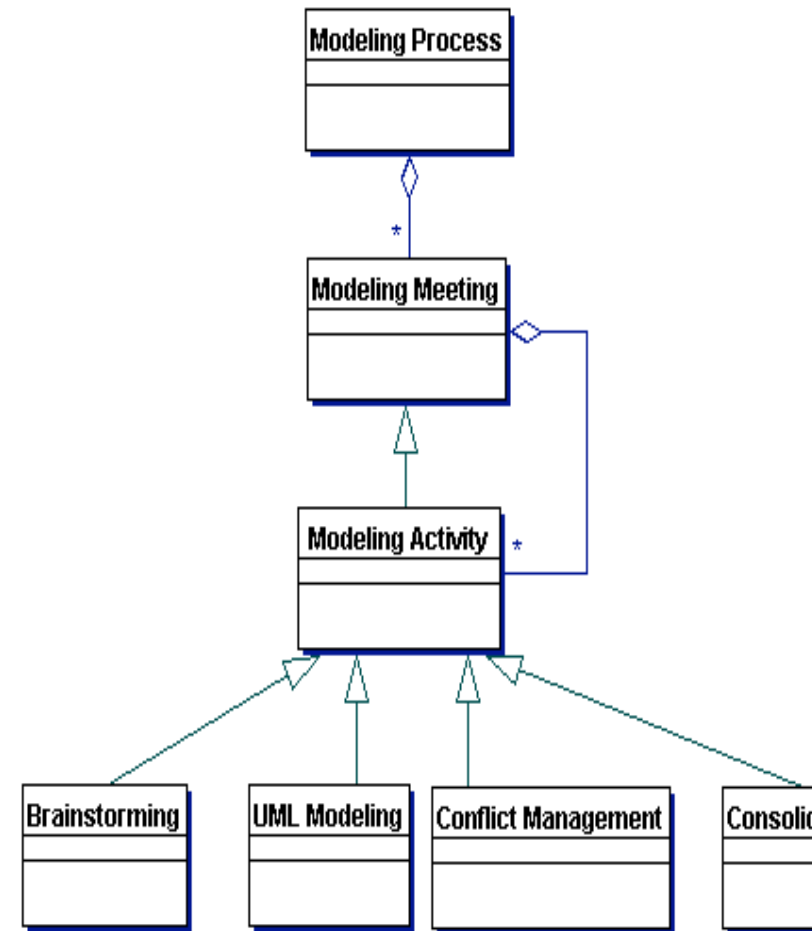
Supports awareness, history

Framework

Modeling Meeting Activities

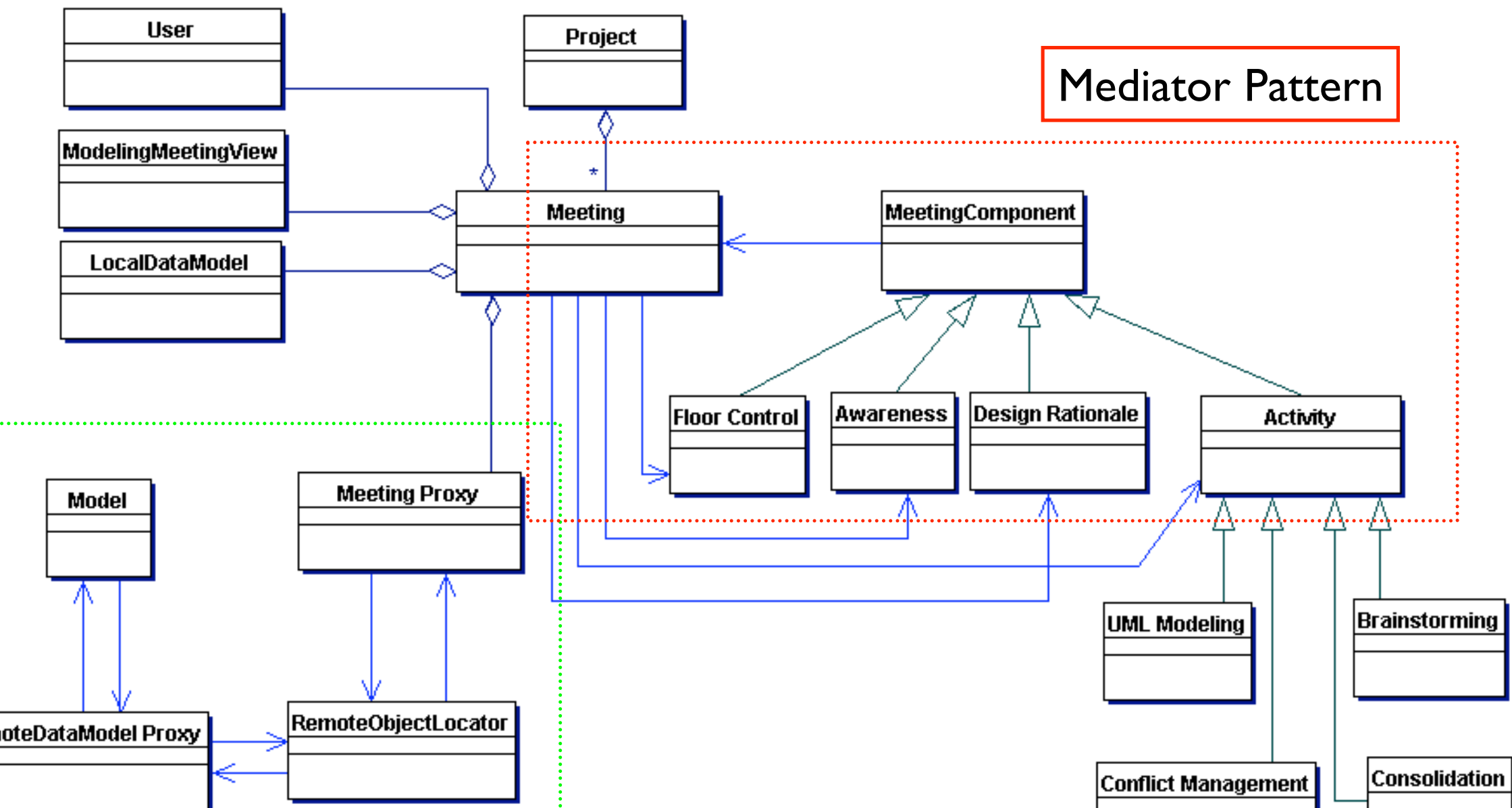


Activities:Description



Activities:Meta-Model

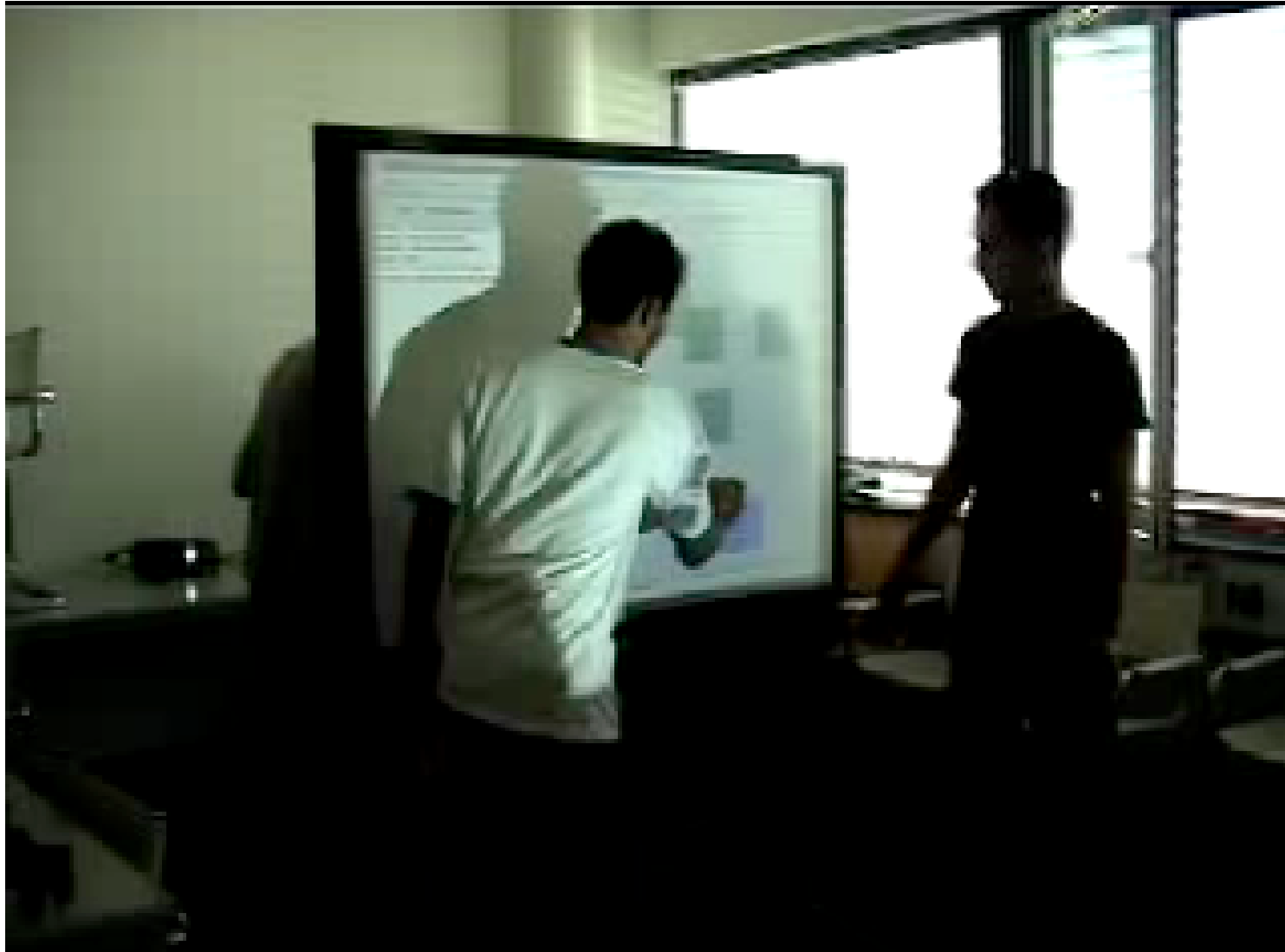
GroupUML: Meta-Model



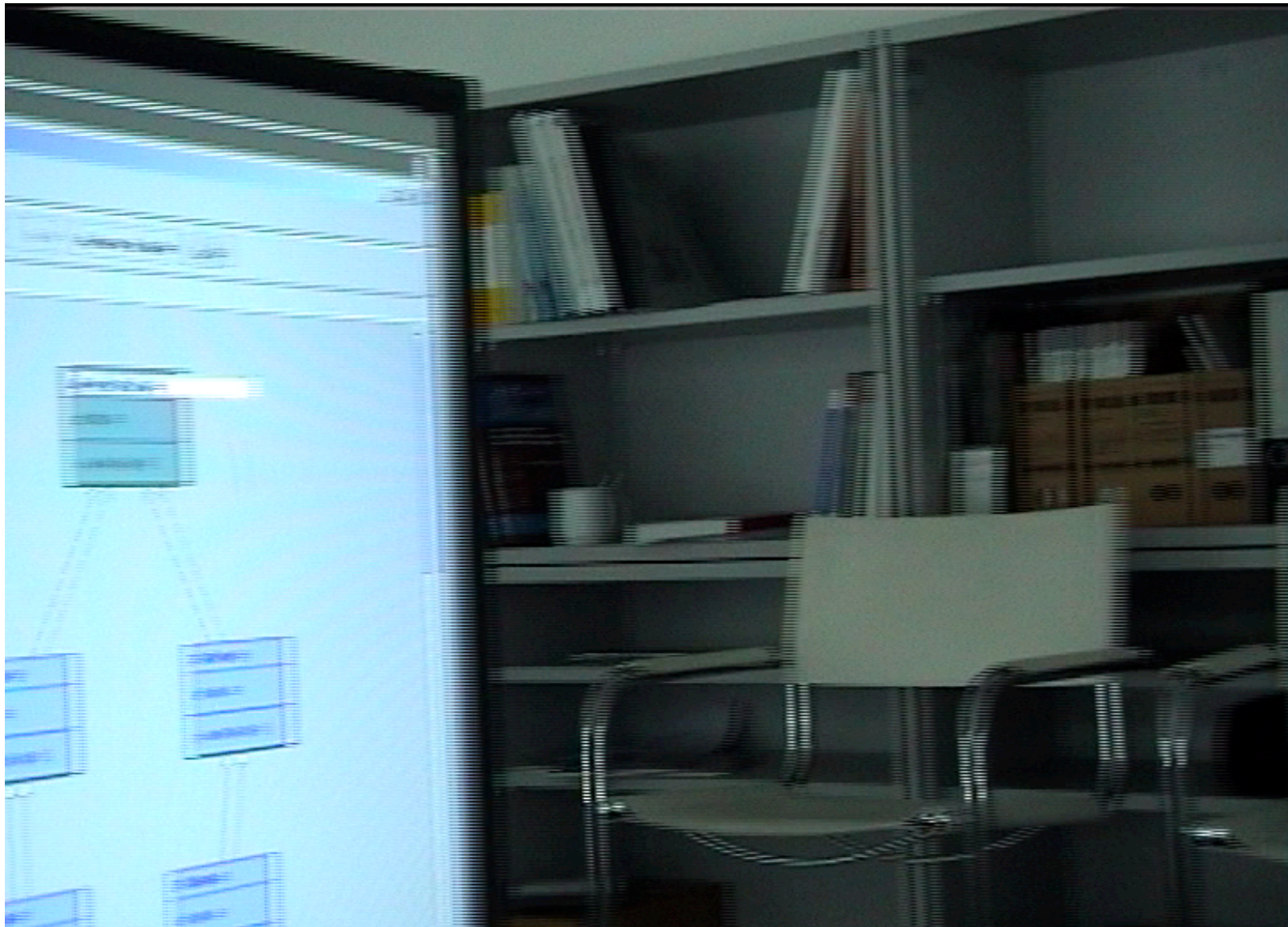
Seminar: CSCW-Based SE

- Introduce students to distributed development issues and to distributed problem-solving
- Provided with an infrastructure for collaboration over a semester long architectural design
- Students got involved in suggesting features to support their (through questionnaires).
- Rapid-prototyping of features
- Benefits:
 - Learning-by-doing (Students)
 - GroupUML validation (us)
- Paper Submitted to ICSE04: report on the experience

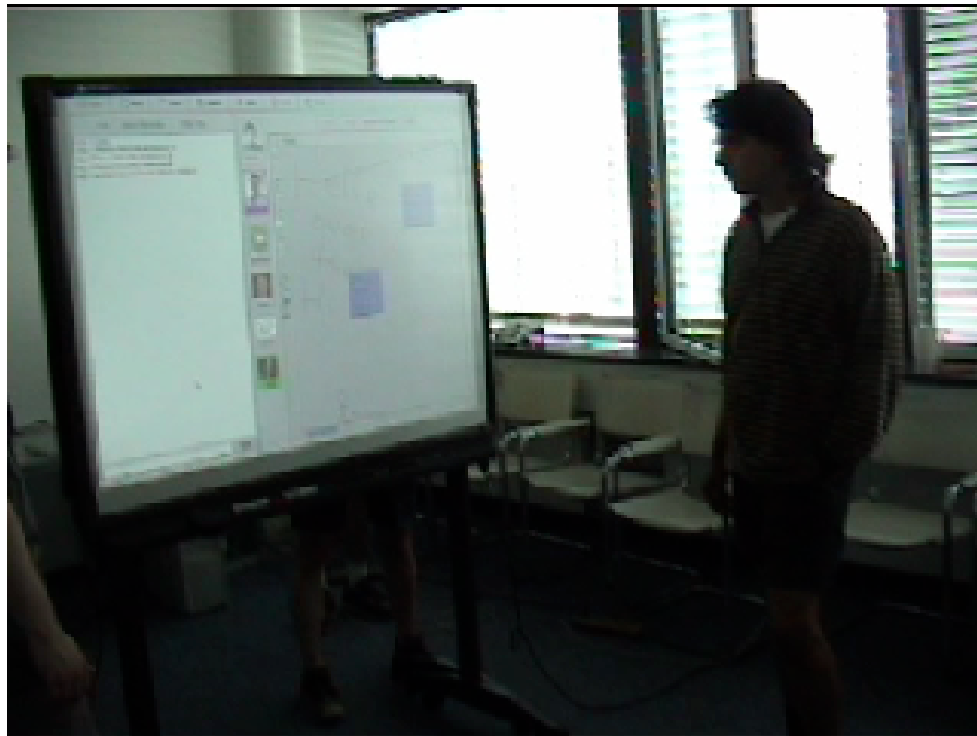
CSCW-Seminar



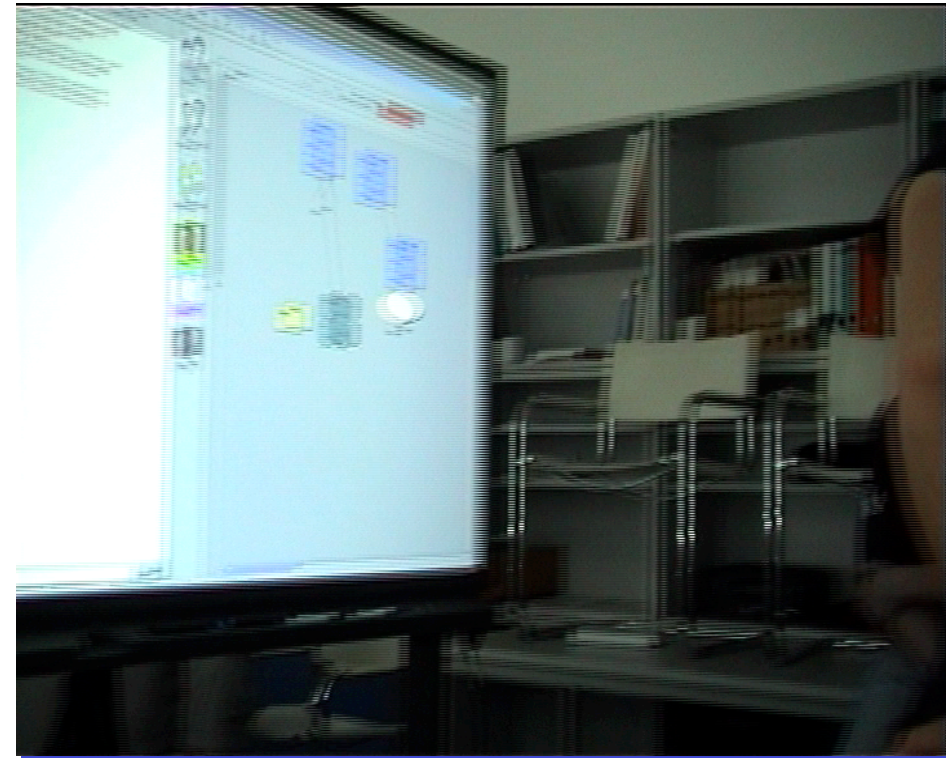
Selection conflict



CSCW-Seminar: Lock Featu

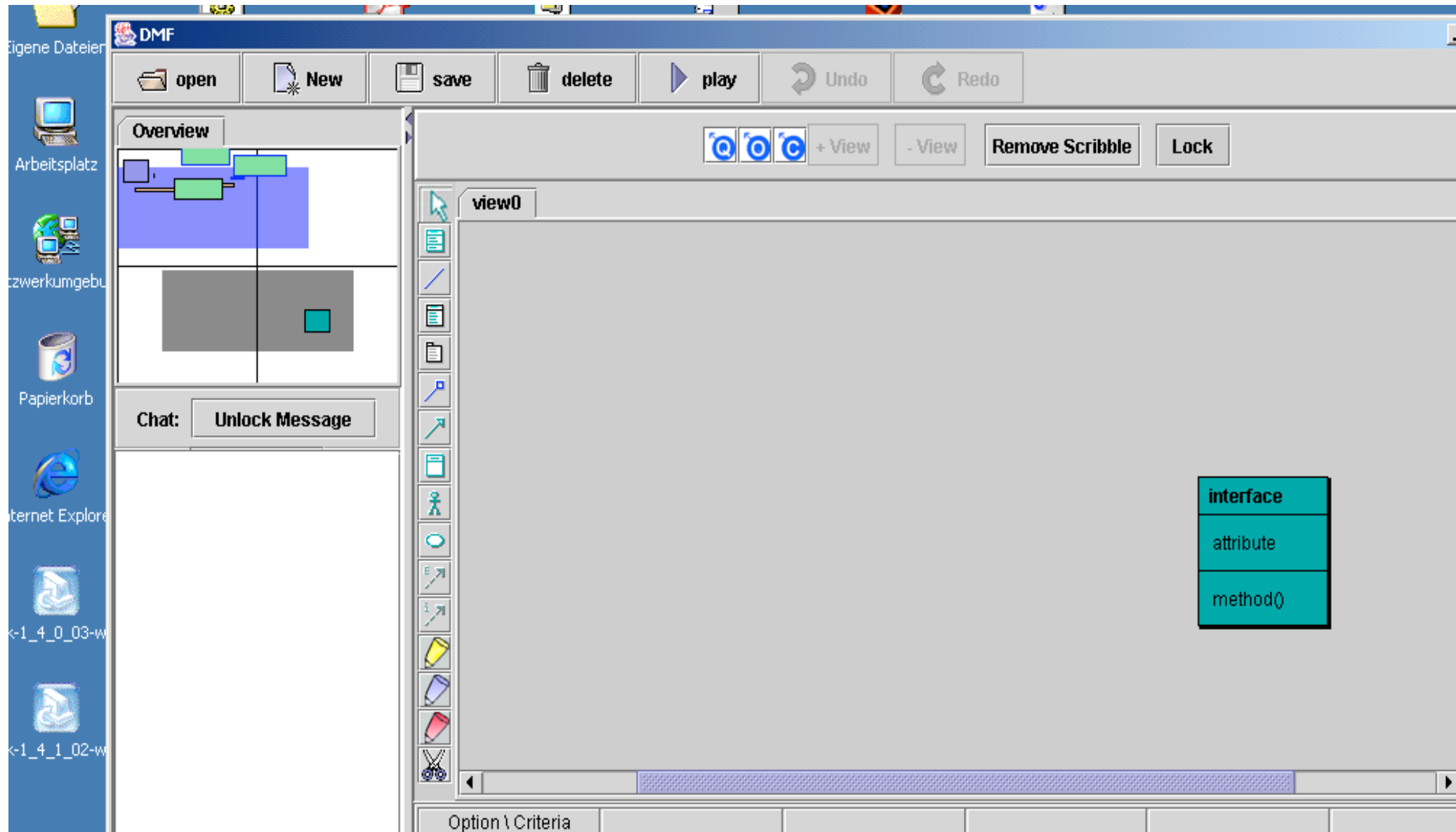


Group I



Group II

Seminar: Radar Feature

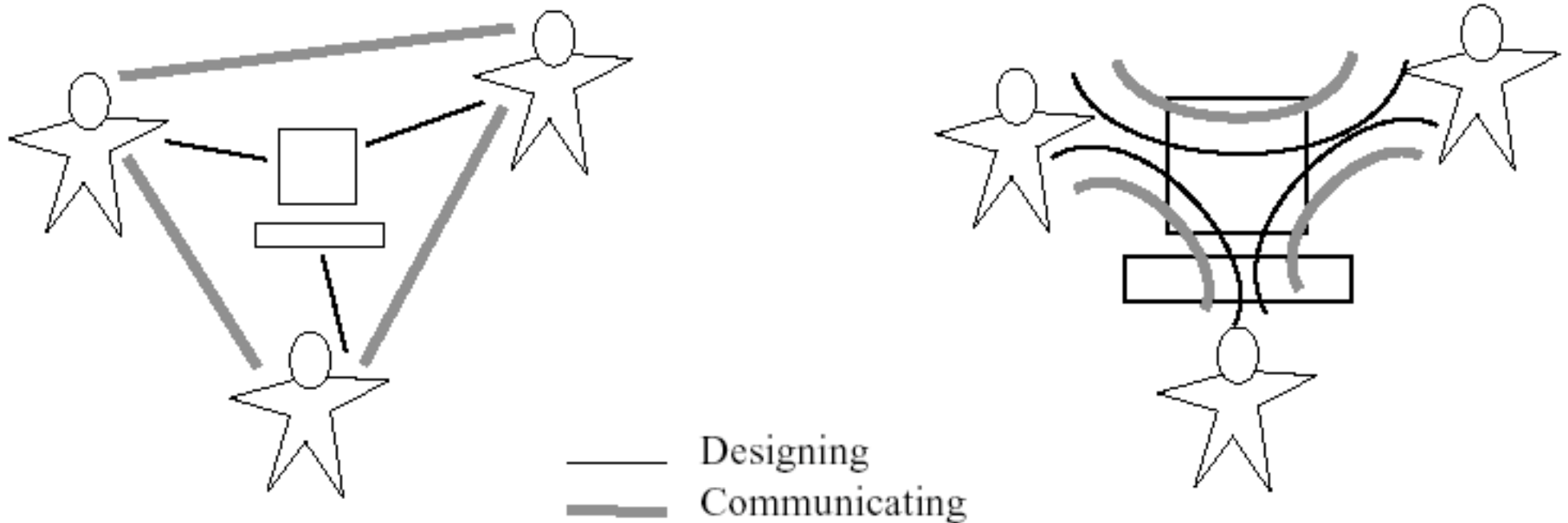


Seminar : Conclusion

- Benefits :
 - Feasibility of distributed collaborative UM modeling
 - Usability (questionnaire, !complete)
 - Students learned CSCW issues by doing
- Missing: managing knowledge produced during meetings (future wo

Enhancing Design Support (

- (Grudin, Reeves 92): one way to provide computer support for design is through *embedded communication*.



Enhancing Design Support (2)

- (Anderson 85): History provides memory cues to aid recognition, lessening the need for recall.



Embedding history

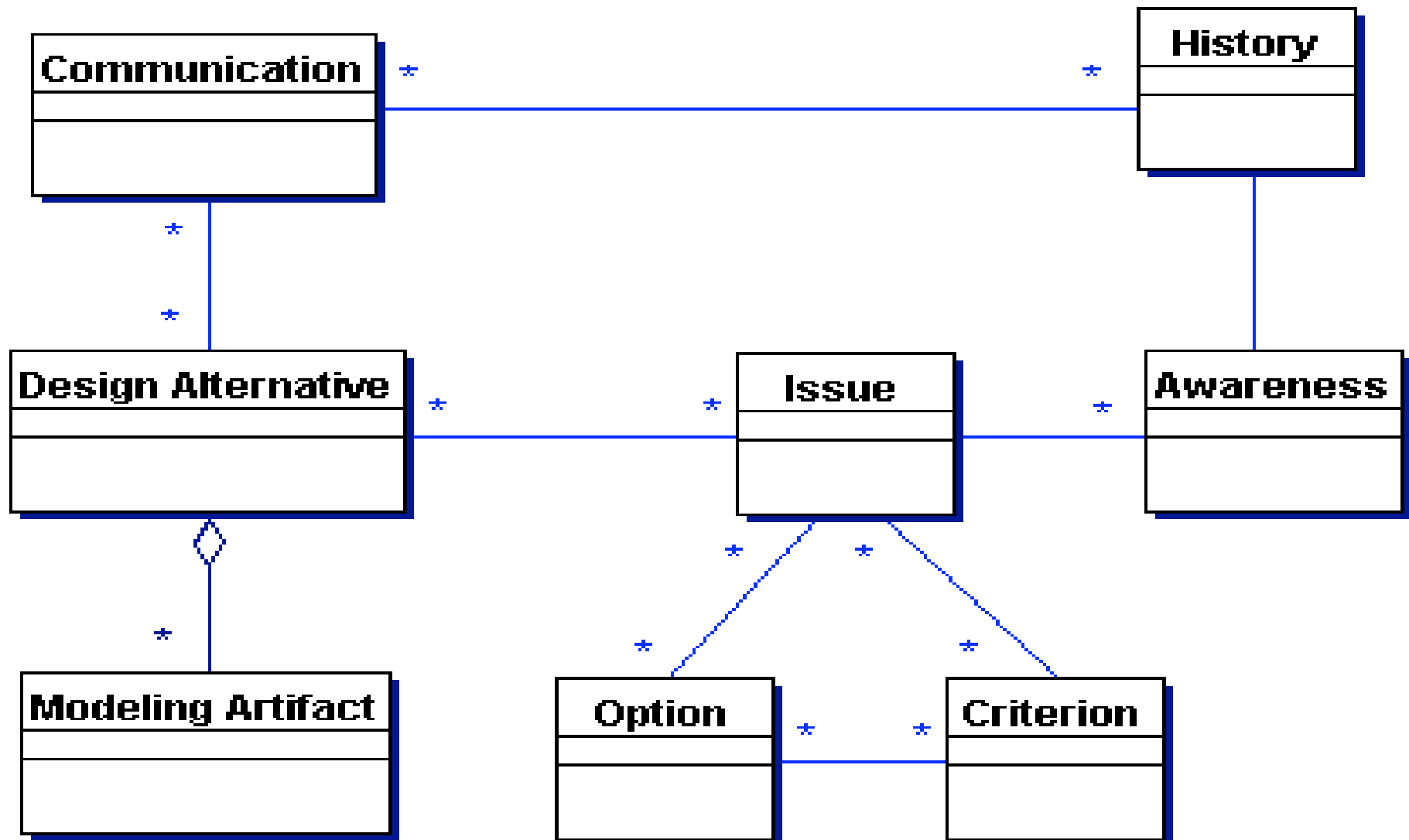
What's next ?

- Long-term collaboration support
- Modify architecture to add support for
 - Evolutionary design (what)
 - knowledge about the design (why)
 - Awareness of the group-design(who)
 - History of the design(when)
- But how ?

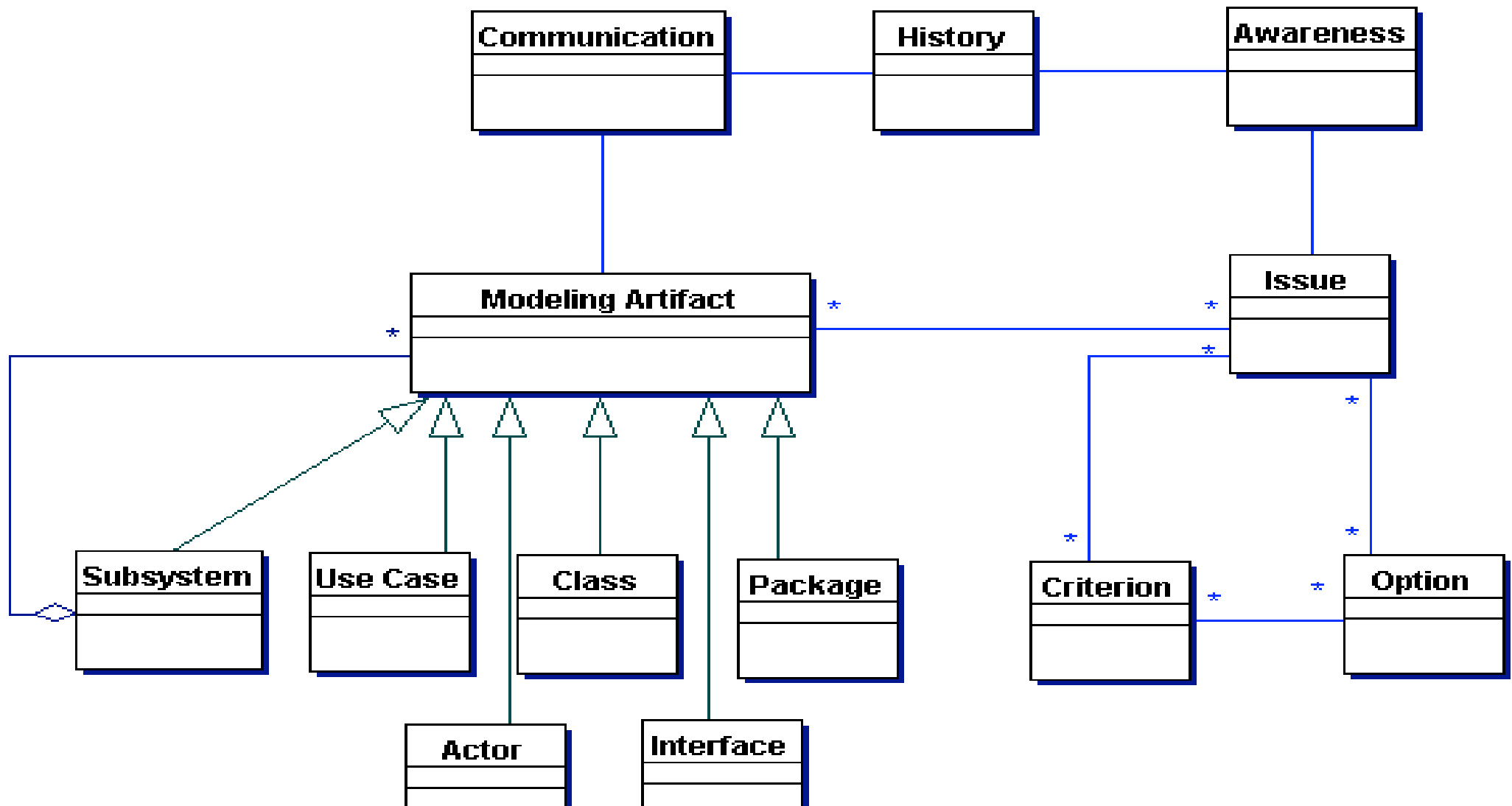
Approach

- Embedding additional information into the collaboration artifacts:
 - Issues
 - Awareness
 - History
- `<Artifact>::<UC>|<C>|<I>|<P>`
- `<Artifact>::<Artifact><Issues><Awareness><History>`
- Evolution of design □ evolution of knowledge, history, awareness

Design Alternatives level



Design Artifacts Level



Future Work

- Development of features to support embedding of issues, history, communication, and awareness information.
- Validate during the CSCW-Seminar
- Check usability
- Still thinking of an experience integrating AR.

ISO9241-11:Usability

Extent to which a product can be used by specific users to achieve specified goals with effectiveness, efficiency and satisfaction in a specified context of use.

- **Effectiveness** : Accuracy and completeness with which users achieve specified goals
- **Efficiency** : Resources expended in relation to the accuracy and completeness with which users achieve goals
- **Satisfaction**: Freedom from discomfort, and positive attitudes toward the use of the product
- **Context of use**: Users, tasks, equipment(hardware, software and materials), and the physical and social environments in which a product is used

Example

