

Evaluation of user activities



Celekt

University of Växjö

Evaluation approach



Activity theory *based on Engeström (1987)*

- Focus on a specific activity system or network of activity systems
- AT sees activities as dynamic and changing
- Collaborative settings
- Educational activities of the project



TOOL

DExT, LOR, Biotube

SUBJECT

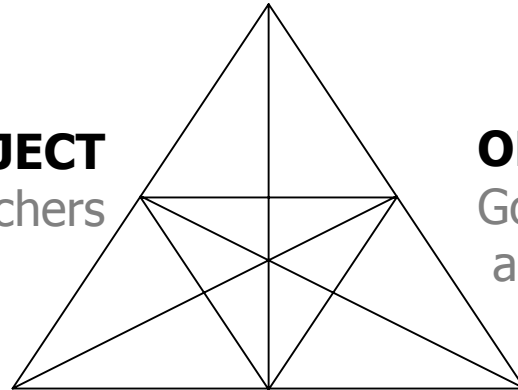
Students, Teachers

OBJECT

Goal for the activity

OUTCOME

"Learning object", real plants, a report...



RULES

Curriculum,
Teachers direction

COMMUNITY

The school,
Xperimenthouse

DIVISION OF LABOUR

Project leader, collector of
data

Evaluation approach



Activity theory *based on Engeström (1987)*

- Focus on a specific activity system or network of activity systems
- AT sees activities as dynamic and changing
- Collaborative settings
- Educational activities of the project
- Complemented with methods from e.g. field studies and others

Evaluation methods



•Expert analysis

- Cognitive Walkthrough
- Heuristic evaluation
- Model based evaluation
- Using previous Studies

•User participation

- Experiments
- Observational Techniques
- Think aloud and cooperative evaluation
- Automatic and non-automatic protocol analysis
- Post walkthroughs

Evaluation methods



- **Collaboration locally**
 - Field study
 - Activity topology
 - Learning trajectory
 - Conversation analysis
- **Collaboration globally**
 - Social network analysis

COLDEX data collection and analysis methods



Input Data	Analysis	Example
Video	Content Analysis, Discourse Analysis, Interaction Analysis	Peer to peer Collaborations, Teacher- Student Interaction
Learning Products	Content Analysis, Hermeneutic Analysis, Structural Analysis	Analysis of student written reports
Process Log	Integrated Analysis, Feedback mechanisms	Software produced data logging
Network Log	Social Network Analysis	Log Data produced by COLDEX network
Interviews	Discourse Analysis	Assessing group behavior
Questionnaire	Content Analysis	Assessing students behavior
Observations	Ethnography, Time Series Analysis	Understanding everyday practice
Think aloud	Grounded Theory	Student Task analysis

Requirements of a Learning Activity



Requirements	Included Yes/No	How/ what?
Authentic activities		
Collaboration		
Construction of artefacts		
Knowledge-centered		
Learner-centered		
Multi-modal interaction		
Reflection		
Situating the context		

Learning Environment Requirements



Requirements	Included Yes/No	How/ what?
Support for the collaborative construction of knowledge objects		
Tools that support negotiation		
Both public and private feedback		
Mechanism to share and exchange information, objects, views, etc.		
Facilitate a meaningful division of labor		
Support joint online thinking, commentary		

Evaluation foci of UDUI



-> Maze, Moon crater height, Seismology

- General usability (students' results, support of modelling)
- Integration and usability of non-standard devices (e.g. RCX, PDA, telescopes)
- Scenarios' support of intercultural exchange/cooperation/re-use of learning objects
- Continuation of the SEED community (teachers) as local OUS activity

Evaluation foci of UNED



Formative Evaluation cycle

- First evaluation: March-April 2003
- Second evaluation: March-April 2004

- System functionality
- Learning improvement
- Collaboration
- Critical issues for deployment
 - Organizational level
 - Infrastructure level



Evaluation foci of INESC



- BeLife
 - Approach: user – centered design
 - Exploratory studies
 - User testing, collaboration and timescale

Evaluation in Växjö



FoodinSpace
Workshops



Teacher
Workshops



Long Term
School Project

Evaluation foci of Växjö



- Attitudes
 - Collaboration
 - Learning strategies
 - Software and activity design
 - Usability
 - Curricular adaptation
-



FoodinSpace Workshops



Data Collection

- Scientific Inquiry Survey
 - Was the process of experimentation that you experienced in the workshop different compared to the process that you are used to in school ? How was it different?
 - “Did explaining/justifying your guesses help you to think about the conditions that could affect your investigation?”
- Student Artifacts
- Video



FoodinSpace Workshops



Analysis

- Focus on COLDEX goals:
enabling rich / social activities
- Evaluation dimensions
 - Problem Solving
 - Collaboration
 - Metacognition
 - Self-Regulation



Teacher Workshops



- Observation
- Questionnaire
- Formative Evaluation of the DeXT



Long term school project



- Long term – i.e. lasts longer time than the workshop
- Hands-on activities with 20 teachers in the Växjö-region
- Conduct fieldstudies in the involved schools
- Refine the design of the scenario and the DExT (Participatory Design)





Long term school project



Evaluation questions

- How does this scenario operate within the Swedish school system?
- Can this scenario be integrated into the schools curriculum?
- How are CBL and and DExT approached by the teacher/student?



Long term school project



Questions

- How does the interactivity between the school and a remote access function?
- How do the students interact with the global community in OUS?
- What is the role of the teacher? Is the role changing?

...dissemination



- Integrating in-service teachers in the design process (Participatory Design) makes them familiar with the way of working
- Finding ways for teachers to work in cooperation with informal learning settings (Xperimenthouse)
- Bringing international perspective into local learning and teaching (OUS)